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PRESENT STATE

OF

HUSBANDRY

IN

SCOTLAND.

EXTRACTED
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OF THE ANNEXED ESTATES,
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PRESENT

PRESENT STATE
OF
HUSBANDRY
IN
SCOTLAND.

Fifth Survey.

IN obedience to the orders of the Honourable Commiſſioners of the Annexed Eſtates, dated 21ſt July 1777, I ſet out the 30th of the ſaid month, and ſurveyed a part of Selkirkſhire, the ſtewartry of Kirkcudbright, the ſhires of Galloway and Air, and part of Dunbartonſhire. I found with pleaſure a variety of improvements carrying on in this extenſive circuit, which have been prompted by a greater variety

of manures, natural and artificial, than I ſaw in any other of my Surveys; which, by different ways of application, will add new knowledge to the general ſyſtem of huſbandry. The following Report, with reſpect to theſe, and other particulars, is humbly ſubmitted to the Honourable Board.

SELKIRKSHIRE.

THIS is a chequered country, of muir and dale, hill and moſs. The dale, or low grounds, bear no proportion to the reſt. The arable land, which is of no great extent, is moſtly in the natural poſſeſſion of the proprietors. Stock and ſtore farms are occupied by tenants of conſiderable note in their line; and from both I received very inſtructive leſſons.

To proceed to particulars. Mr Scot of Gala deſerves the firſt place, by a happy diſpoſition to encourage his tenants, and by his own example to lead them on gradually to every branch of improvement. Nor does he confine his zeal to his own eſtate,

eſtate, being anxious to promote improvements all around him. The ſoil of his farm is generally light and ſharp, but not retentive of moiſture. The ſpots that are naturally moiſt, or are rendered ſo by water falling from higher grounds, are properly drained, either by covered drains, or open conveyances. His outward fences are of ſtone, five feet high, including the coping; the under half ſolid ſtone, the upper half built in the form of the Galloway ſnap-dike; a fence that defies any four-footed animal, and yet it is built for eight-pence per rood. The diviſions are by ſunk fences, neatly lined with ſtone. What facilitates the defences deſcribed, and, at the ſame time, improves the land, is, that the ſtones are found on the ground; the larger employed for fences, and the leſſer for drains under ground. The pooreſt and higheſt ſpots are occupied by trees, about which Mr Scot is not a little induſtrious; fir chiefly, which is the proper plant for ſuch grounds. In a country, far from coal, and bare of wood, no article of improvement is more profitable than

than the planting of fir, the benefit of which reaches even the loweſt people.

Graſs is the chief aim of his huſbandry. He prepares his light ſharp ſoil for it by turnip and potatoes in drills, dunged in the rows, and both horſe and hand-hoed. His returns, in general, are proportioned to his induſtry. Barley ſucceeds upon one furrow, immediately before the ſeed is ſowed. Ten pecks, Linlithgow meaſure, to an Engliſh acre, produce ſomewhat above ſix bolls. With the barley are ſowed twenty pounds of red clover, and one buſhel of rye-graſs *per* acre. White and yellow clover grow naturally, without the neceſſity of ſowing the ſeed. Twenty pounds red clover, on an Engliſh acre, ſecure two good crops of hay, with plenty of paſture after each crop. The hay, alſo, is of a better quality; becauſe, when red clover is ſown thin, it goes more to wood, and is leſs palatable. It is true, indeed, that, when the ſoil is pulveriſed in perfection, and accurately rolled, two thirds of twenty pounds may be ſufficient; but, as culture is ſeldom ſo perfect, it is perhaps a ſafer

ſafer way to add a little more ſeed, for ſupplying deficiencies.

Mr Scot is accurate and attentive, which entitles his obſervations to be relied on. That potatoes are not a robbing crop, but rather an enricher of the ſoil, he proves from the following experiment. The one half of a large field, carefully dreſſed and dunged, cropped with turnip, and the other half with potatoes. The following crop was barley, with graſs ſeeds. The potatoe half carried the beſt barley, and was the ſooneſt ripe: Not only ſo, but the hay taken the two following years gave the weightieſt crops. An experiment he made with ſhell-marl deſerves alſo peculiar attention. Upon a field, the half in paſture, the other half in tilth, equal quantities of ſhell-marl were laid. On the part in paſture it was ſpread on the graſs, and lay ſo a year. What was laid on the other part was mixed with the ſoil, by a ſingle ploughing and harrowing: And, though ſome years have elapſed, the part marled on the ſward ſhows far the beſt in graſs, and appears to be the beſt reliſhed by the cattle. Upon after reflection, this experiment

ment is not altogether ſatisfactory. Without going into other particulars, a deep furrow would bury the marl, and leave little on the ſurface for vegetation. This probably has been the caſe. The effect of ſhell-marl, clay-marl, and lime, depends greatly on their intimate mixture with the ſoil; and there can be no means for an intimate mixture more effectual than ſuperficial ploughing and harrowing. The advantage of ſpreading lime or ſhell-marl on the ſward is, that it is waſhed in gradually among the roots of the plants, and not apt to be buried; and, at the ſame time, there is no crop loſt. That method, however, cannot exceed the other, provided only that care be taken to keep the manure near the ſurface.

The turnip is applied for feeding ſheep and young ſtock. The potatoes are found excellent food for working horſes; half a peck to each for one feed, raw, but well waſhed. When at any time the horſes are hard wrought, a ſmall feed of oats is given them in the morning, and potatoes in the evening. To ſave oats, in a country where oat-meal

oat-meal is the food of the poor, is a meritorious act.

Mr Scot has attempted wheat, after the moſt careful preparation, but without ſucceſs; and, what is ſtill worſe, the land is greatly hurt by it. It is certainly imprudent to attempt wheat on ſo light a ſoil, and in a rainy climate, with ſevere froſt in the ſpring.

His method of cropping is finely adapted to the ſoil and climate. After cutting a crop of graſs two years for hay, or eating green in the houſe, and the foggage paſtured, a crop of oats is taken, with a ſingle furrow; then turnip and potatoes, with dung; and the rotation is finiſhed with barley and graſs ſeeds.

He continues to uſe the Scots plough, but of ſo light a make, as to be no ſtreſs upon a pair of horſes in his light ſoil. But a man of his underſtanding cannot ſtop ſhort: He will ſoon take to the chain-plough, which is fit for all ſoils that are not ſtubborn, nor the ſurface rough and unequal, nor much ſtubble upon it.

We find here cows of different kinds; the Lancaſter, the Holderneſs, and a mixture

mixture of theſe breeds with that of the country. The progeny of a Holderneſs bull and a country cow are found the beſt, both for figure and milkneſs, though they are ſmaller.

Mr Scot does not neglect his farm-houſes. I ſaw ſeveral neatly and commodiouſly fitted up, and covered with blue ſlate; a cheap roof, becauſe laſting above all others, and requiring little repair. Mr Scot finds his profit in ſuch houſes, as it gives him the choiſe of tenants: And not one of the tenants who inhabit ſuch houſes but are found attempting new improvements, by fallowing, ſowing turnip, or manuring with ſhell-marl. The laſt has been lately diſcovered in that eſtate, and is ſo powerful a manure, as neceſſarily to ſtimulate even the dulleſt farmer to beſtir himſelf.

He is attentive to the breed of his ſheep, and uſes rams of Bakewell's kind, but half blood only. One remove further would be better ſuited to that high country; and he inſtructs his tenants not to approach nearer to Bakewell's breed. The inhabitants of the village of Gallaſhiells are induſtrious manufacturers. A ſort of woollen cloth

cloth made there, termed *Galaſhiels gray*, is in great requeſt; the price from twenty-pence to two ſhillings *per* yard. The quantity of wool employed in that manufacture is ſurpriſing; all produced in the neighbourhood. Mr Scot gives every encouragement within the reach of a proprietor; and, in that reſpect, exerts a true patriotic ſpirit, in which he is aided by the truſtees for the manufactures, who, upon his application, have given premiums for improving the ſpinning of woollen yarn, &c.

MR PLUMMER of *Sunderlandhall* has an extenſive eſtate on the banks of Tweed and Ettrick, and extending backwards into the higher parts of the country. It is moſtly of a ſoil capable of high improvement; and that young gentleman is extremely fortunate as to the means of improvement, ſhell-marl being lately diſcovered there in plenty, which anſwers the nature of his ſoil to perfection. Lime is alſo within reach. Luckily he has both talents and induſtry to make the moſt of theſe advantages. With regard to parti-

culars: He begins his operations in the infield with a thorough fallow, levelling, at the ſame time, and ſtraighting his ridges to the breadth of twelve or fifteen feet, as may beſt agree with the drineſs or moiſture of the ſoil. Immediately before the finiſhing furrow, which is in September, twenty-four bolls of lime-ſhells, with dung, are laid on an acre. Formerly the lime was laid on more early, to give time for two ploughings after; but he thinks his preſent practice better. I cannot gueſs for what reaſon, if it be not that the ſoil is too looſe, or that, by unſkilful ploughing, the lime is allowed to ſink too deep. The firſt crop after fallow is barley or oats, with graſs-ſeeds, the latter being conſtantly the richer crop. Fifteen pounds of red clover, and two buſhels of rye-graſs, are given to an acre. He takes hay for two years; the ſecond growth paſtured, he opens, by one ploughing, for oats. The next crop is potatoe, turnip, or peaſe; the former dunged in the rows with proper hoeing, which is a fine preparation for barley. Where peaſe are choſen to ſucceed the oats, they are raiſed broad caſt without

out dung. The whole dung is reſerved for the ſucceeding crop, which is barley with graſs-ſeeds. Mr Plummer is fond of this mode, that the graſs-ſeeds ſowed with the barley may receive immediate benefit from the dung. I am ſhy to give my opinion againſt the practice of eminent cultivators; but, for the ſake of thoſe who are young in the art, Mr Plummer will excuſe me. I am clear for the turnip or potatoe crop, as the beſt preparation for barley and graſs-ſeeds, leaving out the peaſe crop. I give my reaſons. The high culture given to the ſoil, for raiſing turnip or potatoes, is a better preparation for graſs-ſeeds than any ſimple ploughing can be after the peaſe crop. In the next place, peaſe, upon light ſoil, is a very uncertain crop; and, if they fail, all goes wrong after. And, even ſuppoſing the peaſe to anſwer expectation, the riſk is great of the barley and graſs-ſeeds. A good crop of peaſe keeps the ground open and looſe: Frequent ploughing with dung will make it more ſo. And what follows? A droughty ſeaſon will deſtroy the graſs-

ſeeds,

ſeeds, which even the moſt careful rolling will not prevent.

Mr Plummer's intended rotation of cropping the infield is, after ſummer fallow with lime or ſhell-marl, firſt, barley and graſs ſeeds; ſecond, hay; third, hay; fourth, oats; fifth, turnip, or potatoes with dung, or peaſe without dung; ſixth, barley with dung, if it ſucceeds to a peaſe crop; ſeventh, hay; eighth, hay; ninth, oats, which finiſhes the rotation. Lime ſhells coſt forty pence *per* boll, carriage included, an expence that requires the lime to be managed to the greateſt advantage. But, happily for this part of the country, ſhell-marl is found in plenty, and within the reach of every farmer. I add, with regret, that this young improver continues four horſes in his plough. He excuſes himſelf from the vaſt quantity of a ſort of bramble, called the *Lady's Garter*, that overruns the ground with ſtrong roots as ſoon as laid in graſs. But this excuſe is ſcarce ſufficient, as the very firſt ſtep of good huſbandry is to clear the ground of all weeds and roots. I recommended to him the chain-plough made by that eminent artiſt

artiſt Mr Crighton in Canongate, deſcribed in the Gentleman-farmer, ſuggeſting that the phin or feather of the ſock is contrived to cut every root in its way.

This gentleman is alſo a ſtore farmer. He is careful and cautious about improving his breed of ſheep, and warmly recommends to his tenants his own practice, which is to pick out every year ewe lambs of the beſt form and ſize; to graze well, and never to overſtock; to change the rams frequently, from the breed of the country, chooſing thoſe of a proper ſize, well proportioned, and fully made up in the fore quarter and ſhoulder; to ſmear lightly with little tar and much butter. Mr Plummer has greatly improved his flock on his hill farm by obſerving theſe rules; and this is believed to be a better method for improving ſheep in a high expoſed country, than to venture on the fine breed procured from England.

MR CURROR of *Brownmoor* began his career of farming with his own eſtate, which he has improved very conſiderably, and let at an advanced rent. He is now going

going on to improve the Yair, a conſiderable ſtore farm belonging to the Duke of Buccleugh. Mr Curror's long experience in farming entitles him to be a leader in that art, and his practice therefore deſerves the more regard. I begin with his own eſtate, containing more than 500 acres, on a high ground, but flat, and much expoſed in a ſtormy climate. It is moſtly of a black mooriſh ſoil, upon a till bottom, and conſequently retentive of moiſture, which was not eaſy to remedy. Mr Curror began by incloſing the whole with a ſubſtantial ſtone fence, to ſecure himſelf againſt depredations. His next care was to plant firs in ſtrips and clumps for ſhelter and fewel. Wet ſpots were planted with willows, which add to the ſhelter, and to the variety of colour. The ſubdiviſions are with hedge and ditch. The thorns are well trained, and grow ſurpriſingly, conſidering the ſoil and ſituation. In making the ſubdiviſions, the draining the ground by the ditches was a capital view; and to drain the ground as much as poſſible, drains were made both on the ſurface and under it. With a more immediate

mediate view to cropping, pairing and burning were uſed at the rate of twenty-two ſhillings *per* acre. The aſhes were ploughed into the ground in the beginning of Auguſt, and ridges formed about twelve feet broad. In that ſtate the land reſts all winter to be mellowed with froſt. Oats are ſowed in ſpring, five firlots *per* acre producing from eight to ten bolls Linlithgow meaſure, and frequently more than twelve. After three crops of oats, the land is dreſſed for turnip, which with dung is always a great crop, but not got off without difficulty, by reaſon of wetneſs. Cattle were fed at the ſtall with the turnip, which turned to great account. Oats or barley are ſown in ſpring with a ſingle furrow; but the former are preferred, if the ground be dry in time for them. Graſs ſeeds are always added, whether to the oats or barley; red and white clover, with a proportion of ryegraſs. When the field is large, and there is not ſufficiency of dung for the turnip, the remainder is thoroughly ſummer fallowed, with what new dung can be procured; and the next year the whole field is ſowed with barley and graſs ſeeds,

ſeeds, in order that every incloſure may have its whole crop of one kind.

The ſucceſs of theſe improvements attracted the eyes of the neighbourhood. The eſtate, but L. 60 of rent when Mr Curror began his improvements, was ſet to two ſubſtantial tenants for L. 140, the leaſe being for nine years. They have agreed for another nine years, at the ſame rent, but with the following reſtrictions. Firſt, that no ſheep ſhall be kept on the farm; a very neceſſary precaution, conſidering the young hedges, and no fewer than forty-five acres of young trees. Second, no more but two crops of oats after the ground is broke up for graſs; then ſummer fallow with dung; then oats with graſs ſeeds, to remain in graſs four years. By this rotation the ground cannot be hurt.

I proceed to Mr Curror's improvements on his ſtore farms. To improve the quality, and increaſe the quantity of food for a flock of ſheep, is of no ſlight importance in a ſtore farm. Mr Curror's experience and ſucceſs in the following improvements will recommend them to the public. In every

every ſtore farm there are to be found hollow ſpots filled with water during winter, and never perfectly dry in ſummer. When frozen, they are apt to lame the ſheep; and, in dry weather, the paſture is coarſe and rank, and apt to breed diſeaſes. Theſe ſpots are carefully dried by ſuperficial drains, wide at top and narrow at bottom; and, when the ſuperfluous moiſture is thus diſcharged, the graſs that ſprings is ſweet and palatable. Much ground and good paſture has Mr Curror gained by this operation. A farm, abounding with heath, he divides into ſeven or eight portions, burning one every year. This is warranted by him as a valuable improvement. Young heath is a feaſt to ſheep, and they always thrive where there is plenty of it: It is medicinal, and prevents the rot. If there be a fertile or proper ſpot in a whole ſtore farm, it ought to be employed firſt in rearing turnip for the flock during ſnow, and then for raiſing a ſtock of hay from graſs ſeeds for the ſame purpoſe. Save the foggage till lambing-time for the ewes, which are then weak. By this means many ewes

and lambs are refcued from death. In order to ſtock ſparingly, his rule is not to exceed one ſheep on an acre. He always ſeparates the hogs from the grown up ſheep, and allottes a paſture for them; and if any are affected by the ſickneſs, they are removed from the flock; for the whole are apt to catch the diſeaſe.

The original ſtock on this farm was a ſmall ſhort kind of ſheep. By croſſing the breed with rams from Berwickſhire, and re-croſſing, the preſent ſtock is ſo much improved, that the wool, which is of the clothing kind, gives double the price of what it did formerly, and the carcaſe of the animal a third more. His caſt ewes give at Michaelmas from eight to nine ſhillings *per* head. Wedders, with the third fleece upon them, give in July twelve ſhillings. A fleece of wool gives eighteen pence, and ſix or ſeven make a ſtone weight. The wool is carefully waſhed before it is ſhorn.

As to ſmearing, the general practice in this country is one pint of tar mixed with two pounds of butter. This quantity is laid upon ſix ſheep, which cannot fail to injure

injure the wool greatly. Mr Curror mixes double the quantity of butter with a pint of tar, with which he ſalves twelve ſheep. And he is clear, from the experience of ſeveral years, that, not only is the quality of wool improved, but the quantity increaſed; beſides, the flock is in better order than formerly. He adds, that ſalving, in the common method of the country, is death to a weakly ſheep. The following experiment is remarkable, and not a little inſtructive. Mr Curror ſalved a parcel of ſheep with eight pounds of tallow, ſixteen pounds of butter, and four pints train-oil, well mixed. The wool was good, and in plenty. The ſame ſalve was repeated next ſeaſon with the ſame ſheep. The wool was leſs in quantity; and, to make up a ſtone, two fleeces more were requiſite than in the former year. The third year, the quantity of the wool was ſtill leſs; and the fourth year there was ſcarce any left. It was full time to ſtop; and the ſame parcel being now ſalved with one pint of tar, and ſix pounds of butter, the wool gradually increaſed, and, in three years, was fully reſtored.

The

The ſheep, too, got into a better habit, and more fleſh. This experiment ſhows that tar contributes to the health of the animal, becauſe it is probable that a weak or ſickly ſheep bears leſs wool than one in health. Mr Curror obſerves, that tallow is unfriendly to wool; that the wool of the ſheep mentioned was much matted, and cloſely united toward the end; which probably prevented perſpiration. He alſo found that train-oil ſpoils the wool, and prevents its taking on a good colour. Another practice of Mr Curror, which he has found ſucceſsful, both for the quality and quantity of wool, is, immediately after ſhearing, to rub the ſkin all over with oil mixed with warm water. A pennyworth of oil is ſufficient for a ſheep. His cure for the brakſhaw is logwood boiled in ſpring-water till the water has taken on a full colour, of which give two gills, morning and evening, to a ſheep. Keep it from water. This cure commonly proves effectual.

SELKIRK is a royal borough, in the centre of a wool country. The women are excellent

excellent ſpinners, and are fully employed by the Engliſh manufacturers of woollen cloth, who find their account in it, by having their wool ſpun cheaper there than at home. No article is more beneficial to a country than a flouriſhing manufacture that employs many hands. But ſuch is the courſe of Providence, that no country is ſuffered long to monopolize a manufacture. By the demand for hands, and influx of money, wages are raiſed, and people at a diſtance are employed who work cheaper. It is by this means that ſpinning of wool has made a progreſs from Yorkſhire, and other parts in England, to Selkirk, and other towns in the neighbourhood. A ſolid foundation is thus laid for attempting ſome woollen manufacture, ſuited to the ſtaple of the wool in that country; and the time, I hope, is not far diſtant, when we ſhall enjoy a ſhare of that profitable manufacture.

The late Dr Mercer was the firſt who began huſbandry improvements about this town. Eighteen years ago I admired his incloſures, and ſkilful culture. Turnip, barley, and graſs ſeeds, were his favourite plan;

plan; and well did he conduct every operation. The effects were pleaſing; for no where were the crops better. When he firſt attempted to improve, want of hands was a great obſtruction. He combined his own intereſt with that of the country about him. Many boys and girls, wandering about idle, were employed by him to weed turnip, and to clear graſs-grounds of ſtones; and moſt of them became expert in hoeing turnip. Wages paid regularly ſpurred them on to induſtry; and he had the ſatisfaction of reſcuing many young perſons from habits of vice and idleneſs: A private gentleman has it thus in his power to do much ſervice to his native country. A habit of idleneſs is ſoon acquired, and extremely difficult to be eradicated. Even children are capable of doing ſomething; and, when once they acquire a habit of induſtry, they continue in it for life. Hence I infer that the manufactures which employ perſons in early youth are, of all others, the moſt profitable to a nation.

His incloſures are by ditch and hedges; the ditch lined up with ſtone. The ſtones gathered

gathered off the land are ſmall, but flattiſh, and ſtand well. The fences have long ago been complete, owing to great care, during the firſt five years, in clearing the thorns from weeds. Theſe incloſures are let from fifty ſhillings to three pounds *per* acre; and this great improvement has raiſed a ſpirit for agriculture in the neighbourhood; which, from the diſcovery of ſhell-marl, will become more and more vigorous.

It gives me peculiar pleaſure to mention thoſe who have ſignalized themſelves in this art. Mr Fairbairn excels in turnip, the reverend Mr Robertſon in cabbage, and kail as well as turnip. Bailie Curror and Bailie Henderſon have raiſed crops of hay this ſeaſon nothing ſhort of 300 ſtone *per* acre. I would mention ſeveral others, were I not afraid of being tedious.

No eſtate in this country has received ſo thorough an improvement as that of Haining. The ſoil is moſtly wet and ſpungy, ſome of the fields flat, not a little difficult to be drained. The proprietor Mr Pringle's firſt object was to purge the land of ſuperfluous moiſture, without which nothing can be done effectually. He has tried

tried under drains of various ſorts, truſting chiefly to what are done with ſtone laid regularly, with a vacuity in the middle, for a free paſſage to the water. Where there is deficiency of ſtone, he recommends above all heath put up in ſmall bundles after the head is cut off, and tied firm at both ends; and this laſts longer under ground than any other bruſhwood. Birns is preferred; that is, heather-ſtalks, when the branches and tops have been burnt off. They make the moſt ſubſtantial and laſting drain. I mention this for the benefit of thoſe who live near heath, and are ſcarce of ſtones.

The next ſtep was, to clear the ground of every ſtone that could obſtruct the plough; and theſe were employed in fencing poor land, unfit to bear a thorn-hedge. He has made, accordingly, many incloſures of both kinds, and all of them fencible.

Summer-fallow came next, on ground unfit for turnip, and turnip on the drieſt ground. The ridges are formed 15 feet broad for grain and graſs-ſeeds.

His

His great encouragement to induſtry is ſhell-marl, which he poſſeſſes in plenty. It gives him the opportunity of a rapid improvement, dreſſing with it and dung forty or fifty acres in a year, which are laid off with graſs-ſeeds for paſture, and then ſet to tenants, who are encouraged to take theſe improved grounds at an advanced rent, as marl never fails to produce plenty of ſweet graſs. Nowhere are to be ſeen ſheep, milk-cows, and fatting cattle, in better order.

Cows of the breed between the Holderneſs kind and the natives are here in perfection, diſtinguiſhed by a fine tapering horn, riſing upward, with an eaſy curve, a ſmall head and thin neck, ſtraight back, and well proportioned in the fore and hind quarters. It is well vouched to me, that, from one of theſe cows, ſeventeen Scots pints of milk have been got in a day, from another fourteen; the milk rich, and cream in proportion.

As this country is high, and much expoſed, Mr Pringle has made many plantations for ornament, ſhelter, and profit, partly in ſtrips, and partly in clumps.

Coal cannot be procured nearer than twenty miles; which reduces the poor people to a few peats and heath for fewel. How comfortable to them will it be, to be provided with weedings of trees, which ſoon will be the caſe? Mr Pringle, the proprietor, has been extremely buſy in his time, having acquired the eſtate not above fifteen years ago; and, though bred a merchant, and ſucceſsful in that buſineſs, has conducted his huſbandry affairs with as much ſkill and ſagacity as if he had been regularly bred to that art. But genius is a noble foundation; and I muſt obſerve, that a man bred to any branch of buſineſs is ſeldom deficient in any other he undertakes.

THIS obſervation is ſtrongly exemplified in the agriculture operations of General M'Kay upon the farm of *Bowhill*, pleaſantly ſituated at the junction of the rivers Ettrick and Yarrow. The Duke of Buccleugh is proprietor. And in every corner of this country a traveller meets with illuſtrious marks of this young nobleman's zeal for improvements. Here we have no fewer than 120 acres of hill planted by him

him with fir and other trees. The General has a fine field to work on, warm and ſheltered; and he has been not a little attentive to improve theſe advantages, by means chiefly of ſhell-marl, which he has in the neighbourhood, at a moderate price, and has now diſcovered it in his own farm. Leſs anxious to make immediate profit, than to improve the land, he deals moſtly in fertilizing crops, turnip, potatoes, graſs-ſeeds. It is needleſs to be particular: It is ſufficient to ſay, that he is in the higheſt and moſt approved ſtile of huſbandry. I am heartily ſorry to think that we have little certainty of retaining this beneficial improver. The times are cloudy; and, if we have a war with France, he will reſume the ſword, and unyoke the plough. Happy is he, however, to be able to ſerve his country, with applauſe, in either capacity.

WILLIAM SCOT at *Singlie* pays L. 500 Sterling yearly, to the Duke of Buccleugh, for this and other farms, chiefly ſtore-farms. Part of the Singlie farm is low land, at the ſide of the river Ettrick, in which he raiſes alternate crops of corn and hay, the laſt

laſt for food to his ſheep in winter. He raiſes turnip alſo to feed his milk-cows in winter and ſpring, and for his young cattle. It was the practice here to make corn of every ſpot that was acceſſible to the plough, even to the tops of the hills; a ruinous practice, not only as the returns ſeldom equalled the expence, but alſo as an interruption to the ſheep-walk. Mr Scot has prudently laid out every ſpot of that kind with graſs-ſeeds, never again to be taken up, by which he has greatly improved his ſheep-paſture. This, and other articles to be by and bye mentioned, have greatly improved the breed of his ſheep. It is an agreed fact among his neighbours, that his flock is, at an average, eighteen pence *per* head better than eight years ago, when he entered into the farm. He prefers the ſheep carrying the clothing wool as fitteſt for hilly ground. Of the many changes of rams, thoſe from Mr Robſon at Belford pleaſe him the moſt. He ſtocks lightly; and, with the firſt fall of ſnow that lies a few days, he gives hay to his ſheep, upon this principle, that it is much eaſier to keep a beaſt in order than to reſtore

ſtore it after it has loſt fleſh. He lightens his paſture, by ſelling in October the oldeſt and worſt ewes. By theſe means his ſheep are in high reputation.

Mr Scott was educated in the practice of very heavy ſmearing; but his good ſenſe prevailed, and he now ſmears very lightly. He adheres, however, to tar in a ſmall proportion. He thinks that it contributes to the health of the animal, as butter does to the goodneſs of the wool; and he gives the following experiments for evidence. For years paſt, a parcel of ſheep have been kept unſmeared, in order to draw the higheſt price for the wool. That parcel is conſtantly leaner in ſpring than the ſmeared, and longer of taking on fat. The wool, too, loſes in quality, becoming coarſer and harſher. This effect is extremely remarkable where ſheep have been kept unſmeared two ſeaſons running.

Though ſheep are the ſtaple article in this country, Mr Scot does not neglect his black cattle, which are a mixture between the Holderneſs cow and that originally of the country. His ſteers worked in the plough give from eight to nine pounds,

at

at five or ſix years old, in ſummer, after the ploughing is over. A quey, in her firſt calf, at three years old, draws ſix or ſeven guineas.

The greater part of Mr Scot's improvements are new in that part of the country. His ſucceſs, it is hoped, will engage others to follow, and ſpread improvements wider and wider in theſe wild parts.

JAMES BURNET poſſeſſes the ſtore farm of *Whitehope*, high ground, and many hills; a wet ſurface, bearing a coarſe rough graſs, with very little heath, which is reckoned a loſs in a ſtore farm. He is ſkillful and active, and his ſheep are eſteemed. He diſpoſes of his males when hogs, and his ewes at ſix years old. For a ſcore of ſuch ewes, with one to the ſcore, he draws in October L. 9. When ſold with lamb, in ſpring, he draws from L. 11 to L. 12. The ſame number of hogs, unſhorn, draw in the month of June L. 8. To improve his flock, Mr Burnet goes not to England, but procures the beſt rams of his own country breed, brought from a diſtance. As ſoon as the ground is covered three days

days with ſnow, his ſheep get plenty of dry food.

Mr Burnet has gone reſolutely into the reformed method of ſalving his ſheep; but I avoid going into particulars, becauſe his practice differs not from what I have more than once deſcribed already. Proceeding by St Mary's Loch, and the Loch of the Lows, I converſed with many ſtore farmers, among all of whom I found the new method of ſmearing adopted. There is a ſort of ſheep bred on the banks of Megget water. Their wool is very coarſe, yet they are in reputation in Yorkſhire, on account of thriving wonderfully upon the paſture there. There is always a demand for them, and they ſell, by kind, at a higher price than any other ſheep of the ſame ſize.

UPON a farm belonging to the Earl of March, at the head of Megget water, called *Hinderland*, William Anderſon has a fine breed of cows, moſtly of the country kind, remarkably handſome, though not large. They had every appearance of being excellent milk cows. I would have given any

any price for one; but the diſtance was too great for a ſingle one. As many inſtances are met with of fine cattle, natives of Scotland, I cannot ſee why our breed ſhould be ſo much neglected, or rather deſpiſed. It is provoking to ſee gentlemen, and even tenants, running to another country for a breed, when, by a due ſearch, they may find as good at home, and, perhaps, better fitted for the climate.

I WISH to be particular upon Robert Laidlaw, tenant of *Chapplehope*, a very young man, extremely induſtrious, and well educated by his father in the knowledge of ſheep; but, to avoid repetition, I muſt reſtrain my inclination. His ſteers, after being wrought in the plough till ſeven years of age, frequently draw L. 18 the pair.

I CONCLUDE my ſurvey of this county with an obſervation, that, however barren and comfortleſs it may appear to a haſty ſtranger, it contains in its boſom a fund of riches that never can be exhauſted while men love mutton, and wear broad cloth.

Sheep

Sheep are this fund of riches, which are not only inexhauſtible, but afford the pleaſing proſpect of continually improving in value.

I proceeded by the way of Moffat to Dumfries, in order to enter Galloway on that ſide. My obſervations on the country between Moffat and Dumfries are contained in the Report of my laſt year's Survey; and, therefore, the preſent Report ſhall be confined to Galloway.

The STEWARTRY of KIRKCUDBRIGHT, and SHIRE of GALLOWAY.

THE ſurface of the ground, in this wide extended country, is much varied; hills and mountains, ſome bare rocks, ſome covered with moſs and heath, and here and there, even to the top of many hills, a green paſture. Even where the ſurface is thin and rocky, is found rich paſture, compoſed moſtly of white clover and ribbed graſs. Sheep and horned cattle thrive there wonderfully. In the lower parts, and on the coaſt, the ſoil is capable of great improvements. It is in general light, lively, gravelly, eaſily wrought by plough, and capable of receiving much benefit from manure. And nature accordingly has been attentive to that article; an inexhauſtible ſtore of ſea-fleech, ſea-ſhells, and ſhell-marl, is diſperſed along the coaſt, and within the country, ſo that every

very field has acceſs to manure of one ſort or other. Lime is brought from Whitehaven, water-born at an eaſy rate, and alſo from Ireland. So far the proſpect is fair. I muſt not, however, omit its diſadvantages. The climate is adverſe to grain, ſubject to violent ſtorms of wind, and frequent falls of rain. Hence it appears, that this country is naturally adapted for the rearing and feeding of horned cattle and ſheep. The bent of the people has always been to horned cattle; and they totally neglect ſheep, for what reaſon I cannot underſtand. Galloway is the country in Scotland the beſt fitted for ſheep. Snow never lies on any part of that long extended coaſt; nor are the froſts there ſevere; and the country lies nearer the ſun than any other part in Scotland. The paſture in general is fit for ſheep; eſpecially the lower grounds, where the paſture is capable of being greatly improved for ſheep carrying wool of the fineſt quality. The native ſheep are of a ſmall kind, and wretchedly managed. According to my information, it is a practice with many, that, as ſoon as the ewe drops her lamb, ſhe

ſhe is milked twice a day, and the poor lamb left to ſhift for itſelf; as it is allowed to ſuckle only after the mother has been milked, both in the morning and at night, when I fear the greedy milker leaves a very ſcanty pittance for the lamb. The lambs are indeed allowed to ſuck in winter; but this affords them little relief, as the mother's milk dries up when the weather begins to be ſevere. Can the heart of a barbarian deviſe any thing more cruel againſt that poor innocent animal? The wonder is, that any of them ſurvives this treatment, though they be naturally of a hardy conſtitution. The ewes give much milk when well fed, and are peculiarly kind to their lambs. A farmer in my neighbourhood, after having made various trials for aſcertaining what ſort of ſheep are the moſt profitable, declares in favour of a parcel of ewes from Galloway. With theſe came a wedder, whoſe value did not exceed ſix ſhillings. In April he was with other ſheep put into a field of a middling quality for paſture, but not overſtocked. About the middle of December he was weighed alive, and his value, computed

by

by the rule laid down in the Gentleman-farmer, amounted to ſeventeen ſhillings and ſixpence, and the price he drew from the butcher was not much under. This was a large profit for a little Galloway ſheep. My neighbour obſerved, that, if this wedder had been put on his beſt paſture, the rule would have anſwered to a nicety. He is charmed with that rule, as it is of great benefit to farmers by preventing them from being over-reached by the butcher.

But, as it would appear that the whole attention in Galloway is withdrawn from the ſheep, and beſtowed on the horned cattle, the gentlemen are peculiarly ſkilful in that animal, and have improved the breed to perfection. True Galloways, as they are called, ſell by their reputation in every market both of England and Scotland, and draw the higheſt prices. They are preferred by thoſe who are ſkilful, and bought by the ignorant upon reputation. But people are not ſatisfied even with perfection. Several gentlemen are attempting to improve the breed ſtill farther by introducing bulls from England;

a dangerous attempt to alter or mix the breed of cattle that at preſent are in poſſeſſion of the higheſt reputation.

Not many years have paſſed ſince the gentlemen of that country have begun to think of improving their eſtates by agriculture; and the progreſs made will beſt appear by entering into particulars. I begin with the eſtate of William Currie of Reidbank, merchant in Dumfries, who was the firſt, as I am informed, who began huſbandry improvements in that country. He incloſed with ditch and hedge, which, by unremitting care, are now in good order. His great fund for improvement was ſea-ſleech, of which he laid on an acre a quantity weighing 100 tons, and ſometimes to the extent of 150, a manure well adapted to his light ſoil, and very efficacious, as it is compoſed of ſea-ſhells, powdered by attrition, mixed with the fineſt earth, waſhed down from the higher grounds. Mr Currie's induſtry has been rewarded with ſucceſs. His farms are now ſet to induſtrious and enterpriſing tenants. One of them, of 128 acres, was rented, about 25 years ago, at L. 24,

and

and is now let to Charles Barry at L. 125. By Mr Currie's death, a few years ago, a valuable and public ſpirited citizen is loſt to the town of Dumfries.

I with ſingular pleaſure found an ample diſplay of taſte and knowledge in every branch of improvement carried on by Mr Maxwell of Cargen, preſent provoſt of Dumfries. His eſtate meaſures above 600 Scots acres, beautifully ſituated on the banks of the river Nith, and no leſs commodiouſly, as it gives acceſs to lime by water-carriage from Whitehaven in Cumberland; beſides, Dumfries is at hand, a market for whatever is raiſed in the farm. I ſhould have firſt mentioned the richeſt kind of ſea-ſleech afforded him by the river, much more than he can conſume. He began with incloſing, as that requires time to bring it to perfection. His fields are all from ſix to ten acres, with a view to paſture, and they are all now perfectly fencible. Every ſpot unfit for the plough is planted; and the higher grounds are ſheltered with ſtrips of fir, which are all in a thriving condition.

Mr

Mr Maxwell adheres to the following plan of cropping, to which he alſo binds his tenants. Firſt, oats, the ground being once ploughed from graſs. Next, fallow with ſleech, and with lime, when rain or other accidents prevent the whole from being ſleeched. Third year wheat. Fourth, barley with graſs ſeeds. Fifth and ſixth, clover-hay, which finiſhes the rotation. Attention is given to lay ſleech on the part formerly limed, and lime on the part formerly ſleeched. There are few plans better contrived, both for profit and for preſerving the ground in good order. His implements of huſbandry are good, and he yokes but two horſes in a plough without a driver.

I examined carefully the condition of the land in the hands of the tenants. I ſay it, much to their honour, that they do not deviate from the plan above mentioned, and their crops ſucceed accordingly, particularly the wheat crop. Till very lately, every buſhel of wheat uſed in the town of Dumfries was imported from a diſtance. They have now the agreeable

proſpect

proſpect of being fully ſupplied from the neighbourhood.

Not to mention a genteel manſion-houſe, with a ſpacious lawn of rich old graſs, Mr Maxwell's offices are upon a new plan, which is extremely commodious; but, without a draught, it is in vain to think of deſcribing them. I could not turn my eye to any quarter in this part of the country without being delighted with cultivated fields and riſing plantations. But I muſt not ſtop at every improver, which would be endleſs. I ſhall only ſhortly mention, that, among theſe, Mr Maxwell of Terrachty, and Mr Lawſon of Caſtlehill, are eminent.

I muſt be more particular with reſpect to a farm of 700 acres of the Niddeſdale eſtate, poſſeſſed by John Dalyel, at Terregles, a gentleman of a good family, and who is reckoned an excellent farmer. He is peculiarly attentive to his ſheep, as well as black cattle; and of the latter he has an excellent breed. This gentleman, however, is an example of the difficulty of ſtopping at perfection. He will be attempting to mend his breed by Bakewell's

bulls. He has my wiſhes for ſucceſs; but, in the mean time, I doubt much if it will ſucceed. Here I was witneſs to a very barbarous practice that prevails through this country, to correct which would be more worthy this gentleman's attention; I mean their manner of feeding calves. A calf let out to the mother begins to ſuck, when a ſtrong woman places herſelf at the oppoſite ſide of the cow with a ſhort batton. She milks, the calf ſucks, and a battle enſues. The calf ſtruggles hard to draw milk from every teat; the batton is applied, and many ſtrokes given under the belly of the cow. In the combat the milk is dirtied and ſcattered about. In the mean time the cow ſtands ſtock-ſtill, without declaring for either party; and no fewer than twenty-four ſuch battles were fought here this morning I viewed the ſtock of ſheep with attention, being the firſt I met with among the very few where any improvement has been attempted. There are ſheep here of every mixture that can be thought of; but whether ſuch variety, at the ſame time, will tend to perfection, muſt be left to the diſcovery of time.

The

The improvements on this farm by the plough are conducted by Mr Dalyel's eldeſt ſon to the greateſt perfection. This young gentleman's knowledge in agriculture is great, and his deſire to be uſeful is ſtill greater. His peculiar delight is to inſtruct young farmers who ſhow any diſpoſition to do well. With reſpect to his farm operations, it is ſufficient to ſay, that he is eminent in the new mode of huſbandry, which is calculated to make the greateſt profit of the land that is conſiſtent with preſerving it in heart; very different from what was formerly practiſed, and ſtill is in moſt places, which is, to take all the immediate profit poſſible, leaving the next year to ſhift for itſelf. His turnip, potatoes, cabbage, kail, all in drills, are equal to whatever I ſaw in any other farm. Barley, with graſs-ſeeds follow, then hay, and paſture is the concluſion; the plan being ultimately the rearing horned cattle and ſheep. He will be a bleſſing to this country by example as well as precept; and he comes at a ſeaſonable time, as the people there are beginning to awake out of a long lethargy.

This

This young gentleman has an extenſive genius. It is not confined to agriculture. He is a mathematician, and an excellent mechanic. His improvements on wheel carriages, on the plough, the roller, the brake, are conſiderable.

I could not ſlip the opportunity of entreating this young man to oblige the public with his obſervations on breeding, rearing, and improving black cattle. They follow in his own words.

METHOD of KEEPING COWS and REARING their PRODUCE, by MR DALYELL.

Semper erunt, quarum mutare corpora malis.
Semper enim retice. VIRG.

THOUGH breeding cattle has been for ſome time a principal branch in our ſcheme of huſbandry, yet very little attention was given to the choice of either bulls or cows, further than having them moſtly of the Galloway ſort, ſmall, and theſe perhaps

haps not of the trueſt kind; a little better keeping than common made the young ſtock appear to advantage in compariſon with other people's cattle, which might alſo contribute to make us believe that their feeding well, and looking in order, was owing to ſuperiority of breed.

Mr Bakewell's merited fame in the improvement of cattle, excited a reflection that had hitherto been ſtrangely neglected, or very much abuſed, ſo as greatly to hurt the natural breed of this country; for which two reaſons may be aſſigned.

1. Our gentlemen, who formerly took up their own cattle to England, were catched with the great ſize of their cattle, and perhaps thought that increaſing the bone of ours might make them ſtill more valuable; whereas a greater attention in rearing and feeding their young ſtocks would have been much more profitable.

2. As the generality of good feeders are not of equal benefit to the dairy, an improvement of this deficiency was attended with as bad conſequences as the other, and both has in a great meaſure been the cauſe of ſo many mixed ſtocks as are to be found through

through Galloway, which are now eſteemed better or worſe, as they have leſs or more of foreign blood.

As Mr Bakewell's bulls had got great reputation, and ſeemed to poſſeſs properties that ours generally are deficient in, we thought, that, while we made the experiment of a croſs betwixt the beſt bulls in England and our own ſmall cattle, we ſhould at the ſame time be able to determine whether ſuch mixture was proper, or whether we ought to adhere to our own, and improve them.

For this purpoſe, two years ago, we got down one of Mr Bakewell's bulls, and have now two crops of ſtock from him, and this year we got another, whoſe make is a little different, and we think better; ſo that, from the three years product, we hope to form ſome idea whether it will be proper to continue the croſs any further. At preſent the young ſtock look very well; but muſt be older before we can judge of their ſuperior merit, or their diſadvantage. In our method of management, their is nothing remarkable; but, as the inquiſitive reaps knowledge from erroneous, as well as beneficial

beneficial practices, ſo there may be got either negative or poſitive inſtruction, from a ſketch of our manner of feeding and rearing cattle.

COWS.

They are put into houſe ſooner or later as the weather is good or bad, or as the graſs holds out, which is generally from the beginning to the middle of November, when they are fed upon oat, or barley ſtraw, as we may have occaſion to threſh them out, though the oat ſtraw is preferred. They are continued upon this food till they calve, when they get boiled barley chaff, and the water thereof to drink for a day or two; and the ſtraw food is continued, except that once a day they get a feed of hay, turnips, or cabbages. From the middle of March, or firſt of April, they get hay and what turnips or cabbages can be got, till they are turned out to graſs.

Both turnips and cabbages give the milk a bad taſte, and which cannot be avoided, unleſs given with more care than ſuch

ſuch a large number as we keep will admit of.

CALVES.

Our calves are kept in the houſe, tied to ſtakes, getting leave to ſuck their mothers every morning and evening when they are milked, and ſome ſoft hay laid before them, which they learn to eat. After they are a month old, they are allowed to go out in the day-time for exerciſe. When they are turned to paſture, they generally have a good one allowed them, and near to a convenient place for milking the cows.

In winter, if they are houſed, they get hay and a few turnips through the day; but, if kept out altogether, they are put into a well ſheltered field that has not been much eaten through ſummer, when a few ſtones of hay, and 30 or 40 ſtones of turnips *per* day, will keep them in very good order, except in ſtormy weather or ſnow, when they ſhould have their allowance increaſed.

Though

Though thoſe wintered out of the houſe may be in worſe order in the ſpring than the others, which ſeldom is the caſe, yet they take on much better when the graſs riſes; ſo that it would be for the ſake of dung only that we would chooſe to houſe them.

Next ſummer we give them moderate keeping; yet ſuch as puts them up in good condition towards winter, when a middling paſture, with turnips and ſtraw, will keep them in good order.

The ſecond ſummer they get tolerable paſture, and wintered as laſt, upon ſtraw and turnips; and, when they fail, we uſually give them meadow hay.

Third year, their ſummer feeding is better than the former, and in winter they get plenty of turnips and hay; ſo that, with a good winter paſture, they may keep on their ſummer's fleſh, and be in order againſt ſpring, when they have the beſt paſture, to make them fat about Martinmas.

OBSERVATIONS.

There are two methods of grazing in this country; the firſt is to buy ſtock, and ſell it either when profit is offered, or to diſpoſe annually a certain ſtock laid in as winterings, which is the general method in this place; the ſecond is ours, that of breeding and rearing our own ſtock till we ſell them off fat to the butchers, or to be taken to the Engliſh market.

Where land is very good, and the farm ſmall, the firſt may be preferable; but, in a large one, and where the land is not equally good, there are ſeveral advantages that recommend the other.

1. A perſon can improve his ſtock to any degree he pleaſes, and make trial of any bull he chooſes, without hurting his breed.

2. He is leſs in the power of cattle dealers; as he will have few to ſell, ſo they will be in fine order; whereas, in a large ſtock, the variety of good and bad will hurt their ſale, it being in no perſon's power to get them all complete.

3.

3. And two year olds can be kept on much coarſer feeding than a ſtock that is to be ſold annually.

4. From their being made all fit for the butchers, there is almoſt two to one of ſelling them before a leaner ſtock.

Such are the reaſons that have induced us to take to the breeding; beſides the very precarious footing that our cattle trade is on at preſent, being moſtly in the hands of a parcel of jobbers, who hurt themſelves and the country, made us not incline to have more dealings with them than once a year, when it is our buſineſs to have ſuch ſtock as will ſecure to us ſales either to the butcher or drover.

2. Turnips we find to be of very great conſequence to our young ſtock, and a much better method of uſing them than ſtall feeding. With them, they are always in good order and hearty, and ſoon take on with graſs in ſummer.

3. Experience has not taught us whether it is better to let our calves ſuck their mothers or not. It ſeems of conſequence to be known, as the former has ſeveral inconveniencies, the latter none; by it the calves

calves go with their mothers, who give their milk quietly. The quantity given to the calves can be determined, and increaſed or diminiſhed as ſeems proper. In the other way, the calve is entirely at the mercy of a perſon who may give too much or too little without deſign; though, in this country, cuſtom has made them pretty good judges, and conſtantly favourable to the calves, which a Galloway maſter ſeldom quarrels.

In ſhort, it is ſlovenly and naſty; and, unleſs that the action of ſuckling aſſiſts digeſtion, makes leſs ſerve the calve, or makes the cow give milk longer, the other is greatly to be preferred.

4. From the experience of thoſe that do not let their calves ſuck, there ſeems to be little difference betwixt the two and three year olds of both, when other keeping has been nearly equal.

5. Moſt of our cattle are polled, yet many are horned, againſt which moſt of our breeders are much prejudiced; but the want of horns, diſtinguiſhing ours from other breeds, ſeems the beſt reaſon for having them polled.

6.

6. Our bullocks weigh, when fat, from 38 to 42 ſtone, and our heifers from 34 to 38; they will have from 4 to 6 ſtone of tallow of 24 lib. and their hides weigh from three to five ſtone of 16 lib. and we can ſell them from L. 9 to L. 11 *per* piece when fat, at four years old. Few of our graſs fields will keep a beaſt *per* acre; but ſome will come very near it, as we always chooſe to keep our ſtock below our paſture.

7. Our heifers are ſpaved about a year old, in April or May, and our bulls gelded as ſoon as convenient, and the ſooner the better.

ALL the way between Dumfries and Terregles, may be ſeen here and there farms managed in the neweſt mode of huſbandry. There ſeems to be a riſing emulation even among the tenants for excelling. If but favoured by the landlords, ſuch emulation will riſe higher and higher, and produce the beſt effects.

Excited by the great fame of Mr James Rome, I haſtened to Ingleſton-lodge, where he poſſeſſes a large farm belonging to Mr Heron

Heron of Heron. The bargain between them was uncommon; they joined in the leaſe; the landlord advanced the money, and the profits were divided. A bargain of this kind is tickliſh, as, in partnerſhip, men, who are not perfectly well diſpoſed, have many opportunities to differ. But, where two good men meet with mutual eſteem, there is perhaps not another method more certain for improving an eſtate to the higheſt pitch. And this has proved to be the reſult of the leaſe mentioned. Mr Rome got what ſums he was pleaſed to call for; and he has laid them out with great ſkill for his own benefit, as well as that of his landlord. Upon the whole, there is perhaps not another inſtance in Scotland of an equal quantity of land improved to the ſame height in ſo ſhort a time. In ſurveying this extenſive farm, I ſaw, with rapture, incloſures with ditches and hedge in perfection, luxuriant crops of corn, and graſs fields, both hay and paſture, filled with choice graſs plants. But, of all the operations, what ſurpriſed me the moſt is a round hill of 180 acres, ſo ſteep that I was ſcarcely able to crawl up to the top on horſeback;

horſeback, and yet all laid over with ſhell-marl in one ſeaſon; which is the more wonderful, that, being inacceſſible to a wheel carriage, the marl was all carried on horſeback. And this leads me to obſerve, that, at preſent, Mr Rome is the moſt remarkable man in Scotland for enterpriſe and expedition. He never had a rival but one. Alas! that I muſt ſay he is no more. I mean Mr John Hunter, the celebrated Berwickſhire farmer. I prevailed on Mr Rome to give me in writing an account of his progreſs, which I have no doubt will be acceptable to the reader.

"I entered to theſe improvements Whitſunday 1763, upon a thirty years leaſe, in partnerſhip with the proprietor, Mr Heron of Heron. The plan was formed by Lord Kames, which you may have, if you chooſe. You have ſeen that the ſoil is light, but kindly, and a great part of it very much up hill. The outgoing tenants being bound to no reſtriction, had a great part of it under crop, and the graſs ſo much eat up, that no horſes could be kept to do any buſineſs with. However, as

expedition

expedition was my ſcheme, I employed eight men and an overſeer, (being myſelf employed on another farm at ſome diſtance,) in raiſing marl the firſt half year. As I foreſaw that we ſhould be in diſtreſs for want of hay to feed horſes till it was produced from our own improvements, I prevailed with the outgoing tenants to allow me to ſow clover and ryegraſs amongſt their bear and oats. The land was in bad order, and as full of quicks and other weeds as land could well be; yet neceſſity obliged me to riſk the graſs-ſeeds on about 40 acres with little hopes of ſucceſs. Though the tillage was bad, and every thing againſt it, yet, from the ſtrength of dung which had been laid on for ages paſt, (it being what we call here crofting land), and the clover new to the ſoil, it happened luckily to be an excellent crop. This crop ſaved us a deal of trouble and expences in maintaining our horſes to begin our operations with, and was a convincing proof to the country round that clover could be raiſed in this country without much expence; for before this none had attempted it without being at extra-

ordinary

ordinary trouble in the preparation of their land, and had ſeldom ſucceeded. There was not then above 20 acres of clover for many miles round Dumfries; but now we have many hundreds.

"When the tenant's crops were off, I began to plough a field of 67 acres, at firſt acroſs the old crooked ridges, and a ſecond time, about Candlemas, with three horſes in a plough, by which I turned up a good deal of new ſoil that my predeceſſors had never ſeen. I was in hopes to obviate the conceived opinion, that land will not ſtand twice marling, as in this very field there was land that had been three times very ſlightly marled; but the parts that were done ſo, though worſe land, I found to be the beſt crops. This I was glad to find to be the caſe, as moſt of the old arable land in the farm had been marled oftener than once, and very much exhauſted, as I laid the fields and ridges quite out of the old way. In ſome ridges we had the full experiment of land once, twice, and thrice marled, and all my people at reaping were ſenſible of the difference in favour of the latter, as I laid

the ſame quantity of marl on all. In April 1764, I, without harrowing, ploughed acroſs theſe winter ridges; in the end of May I dragged and harrowed it fine, cleared it of weeds and rubbiſh, and with two horſes in the plough, laid it into ten feet ridges, and laid on the marl that ſummer; the firſt September, I began to drag and harrow the marl and ſoil together, then to ſow wheat, and ploughed it in with a neat furrow. This produced a crop of wheat, for which we were offered L. 500 the next September. I knew that it was right to ſow wheat early upon light land; but, if the autumn was fine, I imagined I might err in ſowing it too early. In order to aſcertain this, I made a few experiments; I ſowed two ſhort ridges the 20th July, two more the 20th Auguſt, that ſown the 20th July was in ear the 20th October. I cauſed mow down one of the ridges, and let the other ſtand, which decayed with the froſt; that mowed had a ſtronger and healthier look all the ſpring than the other had. At ripening I could obſerve little odds; but, upon Lord Kames's weighing the heads and grains, they appeared to be a degree

gree heavier. That ſown the 20th Auguſt had a better verdure through the winter; but in the ſpring it was not ſo healthy looking as that ſown in September; at harveſt could not obſerve any odds.

"Having ſeen that the ſoil would anſwer improvement, I was determined with all my force to undertake the marling improvement of Ingleſton-hill, then in a ſtate of nature, covered with heath, and uſed as paſture for a few ſheep, and, from its ſituation, by many thought inacceſſible for horſes. My new plan was therefore ridiculed and laughed at by moſt of my neighbours; however, I reſolved to try. I agreed with an undertaker to dry a moſs that lay at the foot of the hill, where there was marl; this he accompliſhed by making a cut of 24 feet deep; after that was done, my men offered to raiſe as much marl as I chooſed to lay on the acre for 10 s. but I had it raiſed for about 5 s. *per* acre. I employed 24 men by days wages to throw marl, as benefit men will not anſwer on ſuch undertakings; and, meaſuring the diſtance, I ſtepped my horſe ſlowly by the moſt acceſſible way from the marl-moſs

marl-moſs to the fartheſt part of the hill and back again; and, after allowing four minutes to lay on the bags, which I ſuppoſed ready tied, and as long to empty them, I found by my watch that we could go 14 times in ten hours, which I always wrought without unyoking. This I found anſwered in practice; for they carried that number of loads the firſt day in eight hours and three quarters. Then I taſked them to the number of loads, or gangs, as they are called here; and when the weather was good, we generally began between three and four in the morning, and were unyoked by one or two afternoon. We ſometimes had upwards of 90 horſes employed in this work; many of theſe were hired from the neighbouring tenants at two ſhillings for a man and two horſes *per* day. Theſe we divided into companies of eight horſes each, who had two men and a woman allotted to fill and lay on bags to each company. I found it neceſſary, as they came nearer, to augment the number of fillers, in proportion as I augmented the number of gangs. A boy in the morning, at ſetting off with the firſt gang, winded his

his horn, after which each company ſet off in their order, and continued ſo through the day; the overſeer kept an account of every company's loads. I generally kept on the hill to ſee them lay the marl right, and of regular thickneſs, and to make them keep the right path; for, being anxious to have their taſk completed, they would come over precipices, which fatigued both themſelves and horſes more, and threw the whole into diſorder. The quantity we allowed an acre was about 335 bags of about four Wincheſter buſhels each. By calculation, I had allowed 36 days to do the whole, which we did effectually in 32 working days and four hours. In that time we carried up 48,346 bags to the parts of the hill that were inacceſſible to carts. We got it ſpread for a ſhilling an acre. Another hard jobb was now to begin, the ploughing of it, which was by many thought impracticable; but induſtry and perſeverance will ſurmount many difficulties. We opened it into ridges, with ſix large oxen and three men to the plough; the ridges were ploughed up with four horſes. Though I made ſhifting mould-

board

board ploughs, we got very little uſe of them; for, when the men came to lay the furrows to the left hand, it came as aukward to them as writing with the left hand to a clerk; therefore they drove the horſes up the eaſieſt way empty, and came down hill with a furrow; in this way they did it ſurpriſingly ſoon.

"Thus we marled and broke up in leſs than a year, 144 acres of perhaps the worſt lying land that was ever ploughed up in any country. It lay fallow all ſummer 1767; the firſt crop 1768 did not ripen thoroughly; the two ſucceeding crops were very good. With the laſt crop I ſowed 20 lib. white clover, two buſhels ryegraſs, and it is now as good paſture as any in the country. On many parts of the hill were a great many looſe ſtones; theſe I gathered for diviſion dikes, and what were not wanted for them, I built into thick walls on different places, for ſhelter, like this figure +. Summer 1767, we raiſed marl, and marled 200 acres, called Clouden-park; part of this was marled on the fallow, and part on the oat ſtubble; that marled on the ſtubble was not quite ſo good oats as the part

part fallowed; but, when we fallowed the whole for turnip, we found them equally as good. On this fallow, from an oat ſtubble, I ſowed, about the firſt of June 1768, about 50 acres of turnip without dung, in the broad-caſt way, and in ſix weeks had a fine appearance of plants. My greateſt difficulty was to get them hoed properly, as not one of my men had ever had a turnip hoe in their hand, except John Linton, the overſeer, who was bred a gardener; but, by keeping cloſe by them, and ſhewing them how to go on, in a few days the boys and girls began to be pretty handy; the old men continued long aukward, and in 20 days time I had a good number of pretty good hands; and next year, when I had 130 acres turnip, I had about 30 hoers that would have paſſed in any field in Norfolk; ſo that, in 1770, when they were reviewed by Lord Kames, he declared he never ſaw better work, as by this time they cut clean and ſingled them dexterouſly.

" I bought 300 four year old wedders in the Highlands, near Bredalbane, folded them upon the lighteſt parts of the turnip

turnip field, and pulling the hollows for fatting cattle, made the land fine, and produced excellent crops of barley. The ſheep anſwered very well, and I continued this practice for three years, always laying out with barley and graſs-ſeed after the turnip. Summer 1768, I marled 180 acres, and managed them in the ſame way, and in 1769, I marled 170 acres, which finiſhed our marling. I continued this turnip huſbandry for three years, till the 1771, when Mr Heron, my partner, and I, thought fit to divide the improved farms, and he let his ſhare off to tenants. During the courſe of my turnip huſbandry, I was much diſcouraged by bad payments from butchers, otherwiſe it would have anſwered very well; at laſt I was obliged to ſend my fat bullocks to Smithfield market, which I found anſwered very well, and my ſalesman declared they handled as firm at the end of that long journey, as if they had not come above 80 miles, and were preferable to many that are ſent from Norfolk to that market. At the rate of 15 miles a day, they go from Dumfries to London in 29 or 30 days; this is not to be attempted

tempted but when fed with hay, and in wet weather they muſt lie by, and in warm drive at nights; and wet weather ſhaves their feet, and hot weather melts them. In April 1771, I had 87 fat bullocks ſold in Smithfield, the charges on driving, &c. were from 18 s. to 24 s. according to their ſize; notwithſtanding which, they ſold to much better advantage than they would have done at home, and alwiſe ready money; with careful management on the road, this ſcheme is practicable every ſpring; what I was offered from L. 10 to L. 5 at home for, ſold there from L. 15 to L. 8; this paid riſk and charges fully.

"You have ſeen my hedges, which are now very good fences. Theſe I planted in 1764 and 1765. My method was to make a ditch ſix feet wide, firſt raiſing all the good ſoil and laying it in a heap about twenty inches high above the ſurface, then digging the ditch about twenty inches deep; throwing all the bad earth to the back of the good ſoil, I faced up the ditch with ſtones gathered off the land, to about forty inches high, equal to the top of the ſoil. Then

on the top of the good ſoil, I planted the quicks, laying a good marling along with the quicks, which were only about ſix inches aſunder. Theſe I kept quite clean for three or four years, frequently adding freſh mould. This method I prefer to the common way of planting hedges on the face of a trench; for the ſoil frequently crumbles down, and leaves the necks of the plants bare, where you cannot add either freſh earth or manure. If no ſtones, would face up with ſods or turf."

I returned from this part of the country by the way of Newabby to *Arbigland*, the ſeat of Mr *Craik*, ſo much and ſo juſtly famed for his ſuperior ſkill in agriculture. On my road I obſerved every where the influence of Mr Craik's example; and before I go to the maſter, I will mention ſome of his diſciples. Mr Stewart at Newabby is an intelligent young gentleman, and appears to have profited not a little by Mr Craik's inſtructions. His farm is but a ſhort way from the Nith, partly a rich loam over a till bottom; luckly, about two feet below the ſurface, partly

ly a greaſy clay, covered with three inches of moſs, which, mixed by the plough, make excellent ſoil. The firſt, after liming, carries excellent crops of oats, in ſome inſtances no fewer than 12 bolls the acre, Linlithgow meaſure, drilled potatoes and turnip, dunged along the rows, &c. The ſoil with the moſſy ſurface is turned up with a ſhallow furrow, which mixes with the moſs but a ſmall quantity clay. The next is deeper, in order to add more clay to the mixture. Two hundred loads of ſleech are laid on an acre, as much as two horſes can draw in a cart.

This gentleman applies himſelf to the raiſing trees. He has planted lately a hundred acres with aſh, oak, and fir, and is going on to plant all his high and mean grounds. All his plantations are raiſed from ſeed of his own ſaving; and he even draws money for the ſeedling firs he can ſpare. The Honourable Doctor Gideon Murray, living at his benefice in England, can undertake no farm at his eſtate of Kirkhouſe; but he does his part as a landlord, by advancing money for building houſes, for incloſing land, and

for

for lime, for which he never demands more than *5 per cent.* Mr Alexander miniſter at Kirkbean, is another of Mr Craik's diſciples. His little farm is high and expoſed, and acceſs to it with manure difficult; which laſt is not ſenſibly felt with reſpect to lime, but not a little ſevere with reſpect to rock or clay marl, a very heavy manure, and laid on in much greater quantities than lime. Mr Alexander has alſo undertaken a reform on his flock of ſheep. He is among the very few that have ventured to introduce a mixture with Engliſh breed. He is juſtly of opinion, that the preſent debaſed race is unworthy to be ſeen in the paſtures of an improver.

To join in a crowd for doing good is commendable: To be among the firſt to carry on a reformation in any uſeful art, is meritorous; but to be the firſt who ſtands ſingle to correct prejudices of education, confirmed by long practice, and to introduce a fundamental reformation, is the height of patriotiſm. Mr Craik of Arbigland is that illuſtrious perſon. He poſſeſſes the unrivalled honour even of beginning, not to mention of carrying on, a moſt

moſt ſucceſsful reformation in the agriculture of this country. It is true, he ſerved a ſevere apprenticeſhip, as his farm in its natural ſtate was not inviting, wild, and ill cultivated when he undertook it. Providence indeed has been kind to him by an unbounded treaſure of ſea ſhells, ſleech, both of them at hand, and lime from Whitehaven at a moderate price.

Mr Craik, entertaining a high notion of drill-huſbandry, attempted Tull's plan of a conſtant ſucceſſion of wheat on the ſame field. And though that plan was never carried on to greater perfection by any other artiſt; yet, after perſevering for many years, Mr Craik is not aſhamed to ſay that the plan is more ſpecious than ſolid. He has accordingly given it up for wheat; but approves of barley in rows nine inches aſunder. He has invented, for that purpoſe, a machine that anſwers well. But, though Mr Craik has abandoned Tull's plan, he muſt not go without his reward of praiſe. He has ſhown experimentally that nine or ten good crops of wheat, at leaſt, may be raiſed in the ſame field without dung; call them but ſix or ſeven: How great muſt

be

be the improvement that this experiment will produce in the rotation of crops? It will, in the *firſt* place, ſecure good crops of wheat for ſome years. It will, in the *next* place, with the advantage of dung, be a delicious preparation for graſs-ſeeds, which muſt thrive wonderfully on ground ſo thoroughly pulveriſed. And, *laſtly*, great ſtore of dung will be reſerved for other purpoſes.

Mr Craik, ſkilful in mechanics, has ſucceſsfully invented or improved many implements of huſbandry. Several of them he ſent to Mr Crichton coachmaker in Canongate, Edinburgh, who makes them in perfection.

Richer paſture graſs I have not ſeen ſtocked with the true Galloway kind of cattle. Mr Craik, however, is attempting a further improvement by a mixture with Bakewell's kind. Whether it will anſwer, time muſt try. The ſureſt teſt of improvement is the rent that can be afforded. To ſave repetition, I confine myſelf to one farm, which, before Mr Craik began his improvements, paid of rent L. 35 for 130 acres. The whole being well inclоſed,

cloſed, every wet ſpot made dry by under or upper drains, not a ſtone left to interrupt the plough, moſtly in graſs and full of manure, excellent houſes, &c. it is now leaſed at L. 150 Sterling; but with very pointed inſtructions to prevent running out the ground, equally advantageous to the landlord and tenant. I ſhall only mention one particular, that two years hay and four years paſture make always a part of the rotation.

Adam Craik younger of Arbigland inherits his father's virtues, and profits by his example. He carries on the huſbandry operations with induſtry and ſagacity. There is a large track of flat land near the coaſt, covered with heath, which appearring to be irreclaimable, let at no higher rent than one ſhilling *per* acre. This was a proper ſubject for the young gentleman to exerciſe his ſkill on. He began with drawing ditches for carrying off the ſuperfluous moiſture; and, upon the ſide of the ditches, thorns were planted for incloſing. The next ſtep was to lay lime on one field and ſleech on another, at the expence of fifty ſhillings *per* acre, and the manure ploughed in before winter. Two

crops

crops of oats ſucceſſively: Next a dreſſing for turnip with dung, which prepares the ſoil for barley and graſs-ſeeds, eight pounds red clover, as much white, two buſhels rye-graſs, one crop of hay, after which the land is let to tenants at fifteen ſhillings *per* acre for paſture only. If ruſhes come up, which is likely from the clay bottom holding water, Mr Craik thinks of allowing the tenants to break up the ground, and to repeat the rotation of crops as before.

Wages here are high, though there is no ſcarcity of inhabitants: Six pounds Sterling of wages and victuals for a ploughman *per* year; from tenpence to twelvepence for a day-labourer; fivepence or ſixpence for women employed on the farm; and yet proviſions are low, potatoes from threepence to fourpence a peck, weighing 24 pounds Engliſh; oat meal ninepence *per* peck, beef and mutton twopence halfpenny *per* pound. But this country borders with England where theſe wages are given; and people will not reſt with low wages at home when they can get higher in the neighbourhood. But there is a way of preventing high wages, and which

which I think may prove effectual. People are fond of a reſting-place, a houſe, and a little land, under their own management. Let a day-labourer have a houſe, with as much land as he has uſe for, at a rate proportioned to the wages that are given, he is in time attached to his reſidence, and never will remove, if he be not turned away. If wages riſe, raiſe his rent in proportion. A great encouragement alſo to matrimony!

Sir Robert Maxwell of Orchardtown's ſituation is encouraging. Bordering upon Solway frith, lime is landed on his ground from Whitehaven; and any corn he can ſpare is carried by water to Cumberland, or to the weſt of Scotland. His flat ground, moſtly wet, is drained effectually at a conſiderable expence. The fields nearer the hills are dry, and yield fine natural graſs. The rocky parts yield the fineſt graſs, namely, white clover and ribbed graſs. His incloſures are with ditch and hedge, the hedges thriving exceedingly. Much of his grounds that lie high are incloſed with ſtone walls, for ſheep, as well as horned cattle. As the

climate is more favourable to graſs than to corn, his great aim is good paſture for ſheep and horned cattle. Sir Robert, in ten years, has dreſſed and improved no fewer than 350 acres, beſide clearing ſome hundred acres of hilly ground from brier, bramble, and bruſh wood. He has incloſed 3000 acres with ſtone fences, in the moſt ſolid manner.

For ſtocking his farm, young cattle, a year old, are purchaſed, of the true Galloway kind, which he prefers; the price from 35 s. to 40 s. They are laid on a coarſe paſture, but plenty of it, and kept, during winter, in a well-ſheltered field, where the graſs is all their food, except in ſnow or hard froſt, when they get dry food. They are put upon better paſture year after year, and at laſt come to the richeſt; upon which I ſaw cattle remarkable for figure, weight, and fat. They are ſold at four years old, ſteers and heifers, from L. 8 to L. 9. Thoſe bred at home riſe to a larger ſize than thoſe bought in. Lady Maxwell takes charge of the cows and calves. She has baniſhed the barbarous method of letting the calf ſuck while

while the maid is milking. Each calf is allowed as much milk as it inclines to take, till it be two or three weeks old; then two pints evening and morning, till it be four months old, with freſh paſture all the time. They are not houſed ſummer or winter, hay being given them in hard weather. Calves that come ſo late as July are fed on milk a longer time, and houſed in winter all night on hay, and run out in the day-time. The moſt of his cows are of the true Galloway kind, and well ſhaped; but they give little milk, compared with three he has of a Tiviotdale breed, which give twelve pints of rich milk daily. I cannot avoid preferring ſuch cows, which are undoubtedly more profitable than thoſe of the Galloway or Lancaſter kind. The latter, they ſay, take on more beef. Be it ſo; but that circumſtance will never balance the profit of the milk.

A range of high hills feeds a flock of ſheep, that were of little value ten years ago. By croſſing the breed with rams from Annandale and Nithſdale, the carcaſe weighs, now when fat, 15 or 16 pounds *per* quarter, four years old. The wool, in wholeſale,

wholeſale, half a guinea *per* ſtone, 28 pounds Engliſh. What raiſes the price is, that there is no ſmearing but of hogs, and theſe lightly. The ground they feed on is dry, ſnow ſeldom lies, nor does froſt continue long. The wool is of the clothing kind.

To ſhow the progreſs of agriculture in this country, I was told by Sir Robert, that from Dumfries to Kirkcudbright, the ſum paid yearly for lime is not under L. 7000 Sterling.

The ſituation of the eſtate of *Munches*, the property of Mr *Maxwell*, is favourable to improvements. The water of Urr is navigable up to it; lime and ſea-ſhells are landed on ſeveral farms of the eſtate. This eſtate is extenſive, the greater part hill, which affords excellent paſture. A fair trial was made of the operation of lime on graſs. It was ſpread on the very higheſt ground, and wrought like a charm. The ſpot is now full of the fineſt graſſes that grow on the richeſt low grounds.

Mr Maxwell began with incloſing his low fields with ditch and hedge, and undertakes the rearing of the hedges himſelf; for

for which the tenants pay at the rate of one farthing the rood yearly. He has built good farm-houſes, covered with ſlate. One thing he does, that deſerves well to be copied by every proprietor of ability: His tenants may have what ſums they pleaſe from him, to be laid out upon lime and ſea-ſhells, at no more than legal intereſt. Laſt year, the ſum amounted to L. 600 Sterling; doubtful whether more to the praiſe of the landlord, or of his tenants, and highly advantageous to both. The landlord lays out his money for improving his own eſtate; and, at the ſame time, draws intereſt, as if he had lent the money to a ſtranger upon heritable ſecurity. On the other part, the ſums taken up by the tenants will yield to them at leaſt 10 or 12 *per cent.* out of which profit they may well afford to pay the legal intereſt. The induſtry and activity that this plan has raiſed in the tenants, is viſible from their crops. The rotation directed by Mr Maxwell, the two firſt crops from ſward, limed, are oats; third, barley, with graſs-ſeeds, 14 pounds red clover, and one or two buſhels rye-graſs; fourth, hay; fifth,

fifth, paſture, and continued ſo ſeven years more. Mr Maxwell will forgive me for obſerving, that he brings on his graſs-ſeeds too ſoon. A ſummer-fallow on the ſtrong ſoil, hoed turnip on the light, with what dung can be ſpared, would be a fine preparation for graſs. I would, at the ſame time, recommend white clover and ribwort to be added to the other graſſes mentioned.

Mr Maxwell commenced his improvements no farther back than twelve years ago, when lime and ſea-ſhells were utterly unknown in this country. The progreſs ſince has been ſo rapid, as to have brought on an importation of lime into this river, that now extends to L. 2000 Sterling yearly, beſide L. 300 yearly for ſea-ſhells. Wages are high, from 10 d. to 12 d. *per* day. A man employed to work on wet ground can ſcarce be got under 15 d.

Mr Maxwell has happily brought down the expence of ploughing, by employing two horſes only, without a driver.

The eſtate of *Kelton* was purchaſed ſix years ago, by Mr *Gibſon*, who made his fortune

fortune in Virginia; and he is a new example of a truth that cannot be too much inculcated, which is, that if a man be bred to buſineſs, he is capable of any undertaking; induſtry and method will carry him through. Like a wiſe man, he pretends not to be ſkilful in farming by inſpiration; but he acts the prudent part, which is, to put himſelf under the direction of his friend Mr Craik. His great fund for improvement is fiſhed out of the Carline-work loch, containing ſhell-marl in great abundance. Mr Gibſon not only uſes it himſelf, but parcels it out among his tenants. He began with building farm-ſteadings, covered with ſlate. He incloſes with ditch and hedge where the ſoil is favourable to quicks, and where the ditches contribute to draining. Other fields are incloſed with ſnap-dikes, by which, at the ſame time, the land is cleared of ſtones. He gives encouraging leaſes, and binds his tenants to lay on an acre 200 bolls ſhell-marl, Linlithgow meaſure. This exceeds greatly the practice in Strathmore, where 70 or 80 bolls are common. It is indeed a ſtronger and heavier ſoil than what is commonly found

found in Strathmore. To prevent over-cropping, the tenants are bound to the following rotation: firſt, oats; ſecond, barley; third, oats; fourth, barley, with graſs-ſeeds, ten pounds red clover, eight pounds white, two buſhels rye-graſs; fifth, hay, one or two years, and afterward paſtured, till all the lands in the farm have undergone the like rotation. After which, no more than a third of the farm to be in tillage, and two or three crops only taken. Turnip was much inſiſted on; but ignorant, and conſequently obſtinate, people are not eaſily convinced. Mr Gibſon yielded at this time, hoping to prevail afterward. The rents are from nine to fourteen ſhillings *per* acre.

In a country ſcarce of ſkilful farmers, I am fond to contribute my mite, by ſcattering inſtruction. Mr *Peter Gordon*, a young man educated to farming in Mr Craik's ſchool, appears to have been an apt ſcholar. He has, from Mr Gibſon, a leaſe of 200 acres for twenty-one years, at a progreſſive rent, from nine ſhillings to fifteen. Mr Gibſon, putting faith in his integrity and

and knowledge, has left him more at liberty than his other tenants. He deals in drill crops of turnip, potatoes, cabbage, all good. He has this very ſeaſon marled no fewer than 28 acres, at the rate of 200 bolls *per* acre; a great work, conſidering that the marl is carried more than two miles. His rotation is two crops of oats; third, turnip, cabbage, and potatoes; fourth, barley and graſs-ſeeds. His crops of Lincoln barley give great ſatisfaction.

He rears cattle, and prefers the polled kind, or true Galloways, which have no horns. He buys in young beaſts a year old, which ſwell greatly on his turnip and cabbage; ſells them, when three years old, about ſix guineas.

The Earl of *Selkirk* is making conſiderable improvements at St Mary Iſle, his Lordſhip's ſeat; but it is chiefly reſpecting a plan for family conveniencies, and ornamental cultivation, in which we find his Lordſhip has been very ſucceſsful, while, at the ſame time, his farm is made to afford a plentiful ſupply of hay and paſture. The Earl is anxious for aſcertaining the

true medium value of land, of ſhell-marl, of ſheep, wool, cows, heifers, and ſteers. Many experimental trials have been made; but, to bring ſo many valuable and uſeful experiments with preciſion to an ultimate certainty, requires longer time than the ordinary period of the life of man: Yet I hope, from the noble Earl's progreſs in theſe patriotic experiments, and by his perſeverance therein, great diſcoveries may be made, by which general rules will be given for fixing a medium value on the foregoing articles, but more particularly of land and ſhell marl, the knowing whereof muſt be of the higheſt general utility, and profitable to the landlord and tenant.

I never ſaw a more valuable bed of ſhell-marl than is upon the Earl's eſtate of Kirkcudbright. In many parts, it is twenty feet deep, and covered at top with a very thin ſtratum of earth, not exceeding eight inches, which is now drained to the bottom at very conſiderable expence, and a ſtrong gravel forms the ſtratum underneath; a fortunate circumſtance, as the carriages are thereby admitted to be drawn in, and placed at the ſide of the marl, and filled

filled with the greateſt eaſe and expedition. Here is a treaſure, indeed, that requires no great addreſs nor enterpriſe to bring it forth for the intereſt of the Earl, his tenants, and the country. A year, a month, nay a week, ſhould not be let paſs till the tenants are permitted liberty of carrying as much of this excellent manure as they can to their reſpective farms, at a moderate price for every boll they take out.

His Lordſhip, willing to improve the breed of ſheep, entered keenly into the faſhionable mode of bringing rams from England, and at the faſhionable expence, too, of very high purchaſe-money. Mr Bakewell's, Mr Culley's tups were got, and ewes from Mr Thomſon of Northumberland; from theſe an excellent breed of rams were reared, which, although not highly proper for the country, yet the prevailing cuſtom of the times prompted many to apply to his Lordſhip for a purchaſe of the young rams, and offered any price to be named; but the Earl generouſly rejected the proffered high price, and nobly ſaid, as the general improvement of ſheep and wool in the country was his firſt and

principal

principal motive, ſo now no higher price ſhould be received than the value of his young tups ſhould be eſtimated by a butcher, were he to buy them for ſlaughter. Herein Lord Selkirk ſtands ſingly, ſo far as I know; as all thoſe very keen improvers of ſheep and wool in our country willingly ſold their high-bred tups, but they as willingly demanded a very high price.

Mr *Sloan*, who leaſes a farm from the Earl of Selkirk, is one of the greateſt improvers on that eſtate, not only with reſpect to corn, but alſo ſheep and horned cattle. Every article is carried on ſkilfully, in the manner that I have had frequent opportunity to recommend.

From Kirkcudbright, in the road to Twineholm, I ſaw many fields bearing marks of good culture and modern improvement. I ſhall juſt mention a few that fell under my eye. Mr Lamont, a young man, farms from Mr Buſbie 330 acres for L. 150 rent; and gets money from his landlord, for incloſing with ſtone, at the rate of ſix *per cent.* Five *per cent.* is all that

that ought to be demanded. What would a moderate man deſire more than to have his money laid out, upon real ſecurity, at common intereſt? And a landlord has much more: If the money be judiciouſly laid out for the improvement of the farm, the landlord, after the leaſe is expired, draws ten *per cent.* perhaps fifteen. This young man goes on in the beſt ſtile. He has even ventured a bold undertaking, which is to ſtraight and flatten his ridges, which ought never to be attempted by a tenant, unleſs in light gravelly ſoil, which is the caſe of his farm. He procures lime by water-carriage, and liming coſts him about L. 4 *per* acre; that is, at the rate of 220 buſhels of lime-ſhells on the acre, Wincheſter meaſure. Lime is preferred to ſhell-marl, becauſe the grain it produces is better; for marl generally produces a ſloomey crop, the grain is coarſe, and thick-ſkinned; that may be owing to uſing marl too liberally. Mr Lamont made an experiment with lime ſpread upon the braird of barley, about the laſt week of May. It was very ſucceſsful with the crop; and the two crops that followed were alſo very good,

good, although both were white grain. Here I will condemn our young but ſpirited improver, for taking three white corn crops running; ſurely a broad-leafed meliorating crop ſhould intervene. But he is making up now by a hoed crop of potatoes and beans, to which abundance of dung is given. He uſes two horſes in a plough, without a driver.

A Mr *Gordon*, too, has done a great deal with ſhell-marl; but, as he has it in his land, without paying for it, it appears to me that he uſes it rather too liberally.

Mr *Scot*, miniſter of *Twineholm*, gives his pariſhioners a good example in huſbandry, as well as in morals. He does much good in both capacities. Every branch of his huſbandry is well conducted. Lime is the manure he uſes, though ſhell-marl is at hand. His preſent crops of oats, peaſe, barley, wheat, are all good. His potatoes in drills make a fine appearance; hay and paſture-graſs excellent.

But this gentleman's conduct may do ſtill more good, by giving an example to his

his brethren of the clergy who have country-pariſhes. There can ſcarce be imagined a harder ſituation, for a man of induſtry and talents, than to be tied to a country pariſh, with a numerous family and a ſmall ſtipend, and ſeldom a perſon of reading or converſation within his reach. Ought ſuch a man to pine away a life, diſconſolate for want of opportunity to exerciſe his talents? Huſbandry is an excellent reſource for exerciſing his induſtry as well as his genius, an occupation that will enable him with comfort to rear a numerous family; and what perhaps may give him ſtill more ſatisfaction, will enable him to inſtruct the tenants in his pariſh, and introduce among them a habit of induſtry, and conſequently of honeſty.

Mr *Macmurdo* at *Enrick* had the honour to lead the way to huſbandry improvements in the country where he lives. He was encouraged by Mr Murray of Broughton to take from him a large farm on a long leaſe: And both have found their account in it. Mr Murray's land is greatly improved: Mr Macmurdo is a conſiderable

able gainer; and good huſbandry is ſpread all around. The farm was in a wretched ſtate at Macmurdo's entry. He began with clearing the ground of ſtones, with which he made ſnap-dikes for incloſing. The beſt parts he incloſed with ditch and hedge. He employed ſhell-marl, laying on the ſward 200 bolls *per* acre. After lying two years on the ſurface, the ground was ploughed for oats, and produced a good crop even the firſt year, which is not uſual with reſpect to ſhell-marl. I proceed to the rotation of his crops: Oats, two years; third, turnip or potatoes, ſometimes peaſe where the ground is clean; fourth, barley with graſs-ſeeds; fifth, a crop of hay, and then paſture. The benefit of this method is evidenced by the beſt proof: He has ſubſet his farm, under proper reſtrictions, to ſubſtantial tenants, at a rent thrice as much as he pays to his landlord.

In converſing with this intelligent improver, I inquired, whether he ever felt any bad conſequences from laying ſuch a quantity of marl on an acre, the half of which had been found an over doſe in many places? His anſwer was, that he felt

no

no other bad effect but that the ſecond crop of oats was ſloomy, and the pickle not filled; but that he thought it would do better to lay on that quantity at different times.

Mr *Murray* of *Broughton* has given great attention to perfect the breed of the true Galloway kind of cattle, which are in high reputation, and ſell higher than any other black cattle in proportion to their weight. To ſhow the ſucceſs of this gentleman's improvement, he ſold in one drove 100 bullocks, for which he was paid by the drover L. 925, being L. 9 : 5 : 0 the head. They were not of a large ſize, but their figure and fat captivated the purchaſer, who was as complete a judge of cattle as any in England. Mr Murray's method of rearing cattle is to give them coarſe graſs when young, but in great plenty. As ſnow never lies here longer than a night, the young ſtock are never houſed, but all winter over are left to the foggage in a ſheltered field. At the age of three they are led to rich paſture, to fit them for the market. Thoſe that are kept till they are four or five years

old, are fit for the butcher any time during winter or ſpring, with the aid only of a few turnip thrown to them once a day. No ſtall-fed beef is comparable. The bulls and cows are capital. Forty cows I ſaw all in one ſhed tied up to be milked; not a dirty ſpot to be ſeen. Nor can I omit the cleanneſs of the milkers, and of their veſſels. The maid that had the direction was from England: She ſat ſo upright as to preſerve her faſhionable high head from being ruffled. This required much dexterity. Her head-dreſs, however, did not altogether equal the faſhionable heads in Edinburgh.

Notwithſtanding the reputation of the true Galloway breed, yet I muſt obſerve, that many of them carry a light hind quarter, and fall narrow at and under the tail. That defect is not to be found in Mr Murray's ſtock. This amiable gentleman patroniſes every one who ſhows an inclination to improve the ground or the cattle: He gives encouraging leaſes to tenants, and gives them good example by the great quantity of land he has reclaimed from the ſtate of wild nature. He deals deep in the turnip

turnip culture, and raiſes great quantities of hay, both of them intended for his young ſtock.

Kaily is greatly poliſhed, houſe and offices grand, plantations extenſive and in great vigour. This ſeat being ſituated on the confines of a wild barren country, cannot fail to ſtrike the eye of a traveller with uncommon pleaſure.

I proceeded weſtward through the wild mountainous country mentioned, without any inhabitants but a poor ſort of half-ſtarved ſheep. Who were the proprietors I know not; but I muſt ſay that they are very negligent of their intereſt. I was led forward, by a very good road, to the village of *Cree*, inhabited, I preſume, by ſmugglers, becauſe agriculture is quite neglected, though there is a command both of lime and ſea-ſhells. I proceeded to the houſe of *Kirrochtree*; but, to my great mortification, the proprietor, Mr *Heron* of *Heron*, was from home. I halted at Newton-ſtewart, and got information, that, in the pariſhes of Minnigaff and Penningham, the

the ſheep were more attended to than in other parts of Galloway and the ſtewartry; the wool ſhort and fine.

Wigton is inhabited by a drowſy people, who make no figure in trade or manufactures, nor are they more eminent in huſbandry, though the ſoil near the town is good. Sea-ſhell in abundance, and no ſcarcity of dung. I muſt, however, take up with ſmall attempts when no better are to be ſeen. *William M'Connel* has turnip and potatoes in drills, and a field under ſummer fallow, abſolute novelties about the town of Wigton. I took notice of another field under ſummer fallow, and another carrying beans broadcaſt. *Peter Warwick* has turnip and potatoes in drills, very well dreſſed. Theſe are diſciples of Mr Jeffray, factor to the Earl of Selkirk at Baldoon. All that can be ſaid is, that, after a long night, there appear here ſome ſymptoms of a dawn that may probably be followed with the full ſunſhine of huſbandry.

Mr *Jeffray* has the management of the eſtate of *Baldoon*, ſo much of it as is in the

the Earl's own hand; and there is none more fit, whether for knowledge or application. There is, in particular, a vaſt track of land along the ſhore, which has formerly been occupied by the ſea. The ſoil is deep, heavy, and retentive of moiſture, and yet almoſt a dead flat, which makes the management of corn crops extremely difficult; and, accordingly, it has been miſerably mangled by ignorant tenants. Mr Jeffray, by ſkill and perſeverance, has ſurmounted all difficulties. When I viſited the farm, Mr Jeffray was winding up his plan by a thorough ſummer fallow upon the laſt field, in order for graſs; and, when that is done, the whole is to lie in graſs, never again to be opened. There perhaps never was a greater atchievement in huſbandry. I avoid entering into particulars of the variety of culture and cropping that the difference of ſoil and circumſtances of the fields required, becauſe Mr Jeffray engaged to favour me with a full account of his own operations, which he has done; and I give it to the public for further information.

"SIR,

"SIR, *Baldoon, 27th July* 1778.

"SINCE you deſire it, I ſhall endeavour to give you a detail of my practice in huſbandry here.

"The greateſt part of the ſoil of Baldoon is a low marſh, or what we call here a ſea-fleech, having been in ſome former period, in all probability, covered with that element; a ſoil that can ſcarcely come under the definition of a clay, though it approaches near to it, and poſſeſſes moſt of its properties.

"The land had been left out for graſs, in a very exhauſted condition, to cover with ſuch plants as nature afforded. Length of time, however, had covered it pretty cloſe with a coarſe ruſhy graſs, commonly called *ſprat* in this part of the country. The ridges were broad, high, crooked, and unequal, ſome of them terminating in narrow points at mid land: Betwixt theſe ridges lie baulks, covered with ruſhes and ſmall dwarf willows. Such was the ſituation of the ſoil when our operations were begun in the year 1760.

"The

"The lands were firſt ploughed up as the ridges lay, baulks and all, and ſowed with oats. This crop was repeated the ſecond year, and the ploughings directed ſo as to lower the ridges as much as poſſible. As the land was much hurt with water, and the direction of the old ridges ſuch as rather contributed to keep it on than let it off, it became neceſſary at all events to lower theſe ridges effectually, to give the land a proper ſurface. To do this by ploughs and harrows, in the ordinary way, was not only a laborious undertaking, but always attended with the fatal conſequence of robbing the crowns of the old ridges of the upper ſtaple, and rendering them barren for many years. To avoid this evil, the following ſcheme was thought of, *viz.* 1*ſt*, A plough was ſet to work betwixt a pair of ridges, and continued to plough, turning the earth from the ſides of the ridges towards the furrow, till it arrived at the medium height; that is to ſay, halfway from the furrow to the crown, which may be ſuppoſed to have been the original level of the ground before theſe ridges were formed. This done, the part ſo

ploughed

ploughed was ſeverely harrowed, while the ploughs began afreſh to plough again at the old furrow, and ſo continued to repeat the ploughing up again to the medium height of the ridge. It is to be obſerved, that this laſt ploughing was performed with a plough of a larger ſize, and wider in the earth-board than the former, as it wrought deeper, and operated like a trench ploughing; and the laſt round of it, at the medium height, was really two furrows deep. The ſmaller plough now went once round, and turned a furrow from the top into the trench made by the former. The large plough followed, and brought up the trench furrow, laying it above the ſurface furrow that had been turned over by the ſmall plough. The ploughs went a ſecond time round, in the ſame manner, and ſo ſtopped there till the whole furrows in the field were ſo ploughed up to the medium height.

"It is neceſſary to obſerve, that the large plough had gone laſt round, and laid the trench furrow of the under ſtaple upon the top of the ſurface furrow that had been turned over by the ſmall plough.

The

The earth of this under ſtratum furrow a number of ſpademen threw into the old original furrow. The ſmall plough came round in the mean time, and turned a ſurface furrow into the bottom of the trench, which was allowed to lie there. The large plough followed, brought up the under ſtratum, and laid it above the ſurface furrow as before, which was again thrown off by the ſpademen to the old furrow.

"The ploughs and ſpademen proceeded in the ſame manner towards the crown of the ridge, ſtill leaving the upper ſurface in the bottom of the trench furrow, and throwing off the under ſtratum that was turned up by the large trench plough; ſo that, when the field was finiſhed, the ridges aſſumed the ſame form as at beginning, but reverſed, *viz.* a round ridge was now formed where the old furrow formerly had been; and a deep furrow was made where the crown was before.

"It was found neceſſary to raiſe the forced earth upon the old furrows higher than the medium height, otherwiſe they muſt have ſunk below it afterwards. We had no ſtones, and the bottom earth

wrought with the plough as eaſy as the top.

"The whole field was now covered over with the earth of the under ſtratum, and, of courſe, the graſs and weeds of the upper ſtratum were buried below it, and the land got a ſort of culture equal in effect to a trench ploughing. No doubt this will appear to be a very expenſive operation; but, in fact, it really was not ſo; for, reckoning the men at 10 d. *per* day, which was the price I paid them, and reckoning a ploughman and a pair of horſes at 3 s. 6 d. a day, the whole operation was performed, on an average, at the rate of 26 s. ſterling *per* acre, which is little more than the expence of a good ſummer fallow of four ploughings and harrowings; and, even laying aſide the advantage of levelling the old ridges, the operation was nearly in itſelf equal in benefit to a ſummer fallow: And, when it was performed in the winter, it was done without the loſs of a crop. By this method the old ſtaple, inſtead of being buried in the old furrows, is equally ſpread upon the field, within the reach of the roots of corn, though covered with the under ſtratum.

"The

"The field, after the operation of levelling, lay in broad round reverſed ridges, with the upper ſtaple almoſt entirely covered with what had been the under earth; and, in this condition, I covered it with ſea-ſhells, which is our uſual manure here, at the rate of 25 tons or 550 Wincheſter buſhels to an acre, ſpread them immediately from the carts, and ſo allowed the ſhells and this rough ſurface to lie expoſed to the winter froſt and rains till ſpring, when I uſually ſowed it with beans and peaſe, and harrowed in the ſeed with the ſhells without any other ploughing. My peaſe did not always fill well; that depended on the ſeaſon; but I never miſſed a prodigious buſk of ſtraw at leaſt, and ſometimes, when the ſeaſon was tolerably dry, the grain filled well, and proved a fine profitable crop, always quite clean, and fully anſwered my purpoſe, in meliorating the ſoil to a very great degree.

"The following year the land was ploughed, ſtill following the curves of the old ridges, and deepening the crowns of them as much as poſſible; and I ſowed them with oats or barley, which was always

ways very ſtrong. But the barley in wet years was too luxuriant, and did not fill well. The early Poliſh oats ſucceeded beſt, as they are not apt to lodge.

"The following year the field went into a ſummer fallow, got the firſt ploughing along the run of the old ridges, and afterwards two croſs ploughings reverſing one another, then was harrowed ſufficiently, and the field now lay perfectly level, and got a ſlight dunging all over; and as the colour of the ſoil diſtinguiſhed the crowns of the old ridges, a thick cover of a compoſt of ſea-ſhells and dung were again applied to them. The new ridges were next laid out, perfectly ſtraight, on ſome fields of ten, and others of twelve feet breadth, and gathered up to a round ridge, though not high, and ſown with wheat. Thus the levelling was completed, and the new ridges laid out in the ſixth year after the land was broke up; and I cannot ſay that there is now any viſible difference betwixt the crops where the old crowns and furrows had been; they are generally pretty equal throughout, and lie drier

drier and better in all reſpects than the land did before levelling.

" Near 300 acres have been managed in this manner, and are all now laid out in ſtraight ridges as above, and as dry as ſuch a ſoil can well be made.

" Since the levelling, the drill huſbandry has been tried to a conſiderable extent here. I had ſome years upwards of 50 acres in horſe-hoed wheat: In dry years it did pretty well; but, on the whole, it did not prove a profitable culture, which I believe was rather to be attributed to our ſoil and climate than to any fault in the ſcheme itſelf.

" After this land was improved, the quantity of ſeed I uſed was as follows: Six buſhels of oats, four buſhels of wheat, not quite four buſhels of barley, and betwixt four and five buſhels of peaſe to a Scotch acre, all Wincheſter meaſure. Our returns were high, ſometimes our whole crop of oats amounting, at an average, to ten ſeeds, particular fields much higher, eight ſeeds about a medium; our firſt and ſecond rounds of wheat crops amounted to ten and twelve ſeeds; barley higher at times

times in dry ſeaſons, but more precarious than the other two; our peaſe crops have always been precarious as to quantity and quality of grain, but always produced a plentiful crop of ſtraw. In our wet climate and ſoil, peaſe, as a grain crop, muſt ever be precarious. I have raiſed turnip, potatoes, and carrots, the firſt and laſt with very great ſucceſs; but the wetneſs of the land in winter renders it impoſſible to feed turnips upon the ground, or cart them off, without poaching the land very much. I have ſown peaſe on the fallow break of land, and cut them when in full bloom, and made them into hay with good ſucceſs; and found this anſwer as well for the land as a ſummer fallow. But this farm has been long in tillage; and altho' it never had more than two white crops together, without a green crop, has been well dreſſed, and, upon the whole, tenderly uſed; yet, of late years, I have obſerved the crops begin to fall off, and find it neceſſary to lay the land down with graſs; and as this land is naturally a deep, rich, and ſtrong ſoil, it cannot bear a long courſe of tillage without a viſible falling off.

" I

"I have often been ſurpriſed, how the lands in Lothian and Berwickſhire ſhould ſtand a perpetual courſe of tillage, and a much ſeverer rotation of crops; but I preſume that their crops in general muſt not be heavy, and that poſſibly they would reap more advantage by a leſs proportion of tillage, and more graſs.

"I am now ſowing out this farm in graſs for paſture, which is always done with the crop that immediately follows a green crop or ſummer fallow, and a dreſſing of dung or compoſt. My quantity and kinds of graſs-ſeeds are 8 lib. white 8 lib. red clover ſeeds, with half a buſhel of rye-graſs ſeed to a Scotch acre. If it is common hay-ſeeds, (or rye-graſs not quite clean) I ſow a whole buſhel to an acre, and always add a few pounds of the ſmall plantain ſeed when I can have it. I have alſo tried the yellow trefoil, but it did not ſucceed on this ſoil. I believe the graſs will do exceeding well. You ſaw in ſummer 1777 twenty Galloway cows feeding upon twenty acres of this graſs. It fattened them very completely without any aſſiſtance. I bought them at the firſt of

May

May for L. 2 : 8 : 6 each, and ſold theſe twenty cows, on the 15th of November following, to the butcher, at one hundred guineas neat, ready money; ſo that the groſs profits were L. 2 : 16 : 6 *per* cow, which is the ſame *per* acre; and as 6s. 6d. *per* acre ſhould nearly clear expence, intereſt of money, &c. there remains a neat ſum of 50s. *per* acre, free profits. This field had been cut twice for hay the former year; but I am this year to make experiment, in grazing of a field ſown out laſt ſpring, without having been cut at all; how it will do, time will ſhow.

" The high grounds belonging to this farm are much the ſame ſort of ſoil with the adjoining lands; and the general run of this part of the country very different, in all reſpects, from the ſoil above deſcribed. They are a thin, gravelly, although a kindly ſort of ſoil; very apt to cover with Scotch and Iriſh furze; much broken, and perplexed with rocks and ſtones; incumbered with knolls, hillocks, and ſmall ſpots of wet land intervening; but, with all theſe diſadvantages, very capable of improvement, with a much ſmaller quantity

quantity of manure than would be effectual on the deep clay ſoils.

"I had occaſion to take a ſmall farm of this ſort of ſoil under my management, and my firſt operations were upon a field of 30 acres, in a very bad condition. The arable part of it was a ſort of outfield, that had been much over-cropped by ſome ſmall tenants that poſſeſſed it on yearly bargains for a long time. It was cloſe covered with ſmall whins which had been repeatedly burnt, and ſo ſpread their roots to a greater degree. The unarable part was covered with whins and a ſhort heath. The firſt ſtep I took was to clear it of whins, and to dig up the ſtones and ſuch looſe rocks as ſtood moſt in my way, with which ſtones I incloſed it round with what we call a dry ſtone dyke. I next covered it over with ſea-ſhells, at the rate of 20 tons or 440 buſhels Wincheſter to an acre. Theſe ſhells lay ſpread upon the ſurface, a part of them two years, and a part of them only one year. The ground was then ploughed up and ſown with oats, which were pretty good, and, as we have no barn there, I ſold them on the foot at L. 4 *per* acre.

The land was ploughed again, and ſown with oats for the ſecond crop, which was greatly ſuperior to the former in every reſpect. After the cutting of this crop, the land was again ploughed up, and turned into a green crop, ſo far as it could be got tolerably clean; the remainder was turned into a ſummer fallow, and the whole got a dreſſing of dung or compoſt. The ridges were laid out as ſtraight as the rough rocky ſurface would allow, and the whole was ſown in the following ſpring with oats and graſs-ſeeds, in the following proportions, *viz.* 6 lib. red, 6 lib. white, and 4 lib. yellow clover ſeeds, with a buſhel of hay-ſeeds, and 3 lib. of the ſmall plantain ſeeds to an acre. The crop of corn and graſs were both exceedingly good. The firſt I ſold on the foot at L. 5 *per* acre; and this field of 30 acres, naked rocks and knolls all included, is now ſet to a very judicious grazier for L. 30 *per annum* for grazing only. Improvement, in this inſtance, turned out the moſt beneficial of any I ever knew; for the land originally was really the moſt poor, exhauſted piece of ground to be met with in this country, where inſtances of this

this ſort are not wanting. The moor part of it, beſide its natural poverty where there was any ſoil, had been cut up for turf to cover the houſes of a little neighbouring village, who held it as a ſort of common. One thing againſt this ſort of ſoil is the returning of the whins, which you ſeem to think an invincible evil: I hope it is not ſo; but I ſhall ſoon have experience ſufficient to determine the queſtion. I have ſet the cleaning out of the whins that may make their appearance in this incloſure at 2 d. *per* acre annually to a labouring man; he goes through it carefully once a year in winter after a froſt, and takes up ſuch as appear, brambles, &c. and it hath not yet afforded him work equal to his money.

" I have now ſown out a field of the Hurdland ſoil belonging to this farm, of a better ſoil originally, and gone through a longer proceſs of tillage, more dunging, and higher management in every reſpect, than the above incloſure. This laſt was the thickeſt covered hill with whins of any in Galloway, and was almoſt impenetrable by any thing but a fox. Should the whins not return upon this field, I ſuppoſe you will

will agree with me, that a ſoil, though in a poor exhauſted condition, very prone to produce whins, may be ſo altered in its nature, and enriched by culture, as to render it unfit to produce that plant in after times. So much is certain, that, when we drain wet land, ruſhes give way, and are ſucceeded by finer plants; and that if lime or any rich manure is ſpread upon heath, the heath will give way, and be ſucceeded even by white clover and fine graſſes, provided the land is dry. I have ſet this laſt-mentioned field to a grazier, for grazing only, at 28 s. *per* acre, and am perſuaded, that both this and the 30 acre field will ſupport their preſent rents, provided the plough is forbid, and the tenants adhere to their articles, of not paſturing theſe new ſown out fields in winter till they get a firm and proper cover of graſs.

" After this account I have given of theſe two fields, it may ſeem ſtrange that the lands adjoining to theſe, equal in quality, and ſome in the country greatly ſuperior, and even where marl is in plenty, or ſhells eaſily within reach, ſhould yet bring the proprietor no more than ſix or ſeven

ſeven ſhillings *per* acre, and the tenants, under the preſent mode of management, not even able to pay that rent: This is fact, and the caſe muſt ever remain ſo, or grow worſe, till a different mode of management from what they have followed is adopted.

" The land in Galloway is entirely a grazing ſoil, and ſhould never be cropped, unleſs the view is to improve and lay it properly down for graſs. No rotation of crops will, do if perpetually continued in tillage, or even paſt a ſhort and limited time.

" The application of the ſhell-marl at firſt brought the tenant great crops, and prompted him to extend his tillage beyond what the land could bear. Whenever the ground was marled, the buſineſs they thought was done, and that it could not be wronged with cropping; and ſome of the proprietors ſeemed to have thought ſo too. The very contrary was the fact. It was only then in a condition to be totally ruined; and, in ſome of the marled parts of this country, the marled land is ſo far reduced as not to produce a crop of two ſeeds;

ſeeds; nor does it, when ſuffered to lie out, produce any other vegetable than a dwarf thiſtle here and there. You would have obſerved marled lands in this ſituation near Sir William Maxwell's of Monreith, where what might have been the greateſt benefit, has, by unſkilful conduct, become a very great misfortune.

" Marl, lime, or ſea-ſhells, have a moſt amazing effect upon the dry thin kindly lands in this country, and for two or three crops after the application of theſe manures, they will equal the beſt lands in Eaſt Lothian; and if they are properly laid down to graſs after a green crop, before they are exhauſted, they will alſo in graſs not fall far behind the general run of your lands.

" In conformity to this plan of management, Lord Selkirk's tenants, who lately got tacks, are bound, in the *firſt* place, to break up no lee land in their farms till it has been ſhelled, limed, or marled with ſuch quantities of theſe manures as are ſpecified in their leaſes; and when ſhelled, limed, or marled, they are to take two white crops, a green crop, and to lay it down into graſs with the third white crop,

according

according to the ſame mode, in all reſpects, as was followed with the 30 acre incloſure above mentioned, and ſo to proceed thro' the whole of the farm, ſhelling, cropping, and laying down in the ſame manner, and not at liberty to return upon any part that has been ſo laid down, till the whole farm has been manured, cropped, and ſo laid down to graſs. A plan of this ſort would ſave this part of the country from impending ruin, and lay the foundation of wealth and well-paid rents among the tenants. But to make the execution of this plan effectual, the land muſt be incloſed and ſubdivided, ſo as the tenant can avail himſelf of the advantage of the green crops; and it remains with the proprietors, whether they will do this or not; for the tenants are not able to do it, nor can it be expected they ſhould, if they were able, upon a nineteen year's tack.

"I ſhall now trouble you with my practice in the culture of carrots, which I have carried to a greater extent, and perhaps for a greater number of years, than moſt farmers north of the Tweed. I at firſt thought that carrots would only ſucceed upon ground

ground that had been previouſly prepared by a ſummer fallow, and accordingly raiſed them firſt upon land ſo prepared; but, in the latter part of my practice, I only made uſe of the break of land that came in courſe for fallow or green crop. The ſpot ſet apart for carrots was ploughed as ſoon as the crop was carried off, lay expoſed as through the winter, and was ploughed again in the ſpring, ſo ſoon as it was ſufficiently dry. After this ploughing, it was harrowed, and then ploughed again into ridges of five feet breadth. This was a deep and good ploughing. The deeper the furrow the better; for upon this depends the length of the carrots. After this ploughing the land is dunged, at the rate of about 40 cart load *per* acre of rotten dung laid into the bottom of the furrows, and ſpread. The firſt round, in ploughing after the dung, is performed by a ſmall plough which covers up the dung. The ſecond round is performed by a plough wide in the earth-board, which cloſes the earth high above the former round; and the third round is performed by any common plough, and only lays the earth up ſo

as

as to ſupport the earth laid up by the ſecond round. A double plough, with two earth boards, then follows, and cleans up the furrow, and ſo the ploughing is finiſhed. The field thus plowed, a ſingle horſe is ſet to work, with two little angular harrows fixed each to the end of a beam of five feet long, which harrows two ridges at a time; harrowing them gently, for fear of reducing their height.

"The harrowing done, I made uſe of the wheat drill-plough, and with it made two little ruts, about two inches deep, on the top of the five foot ridge, at a foot diſtance from each other. I tried at firſt to ſow the ſeed at this operation by the drill plough; but the roughneſs of the carrot ſeed prevents its diſcharging regularly, and the crop was unequal; therefore gave up that practice, and uſed the drill plough for making the two little ruts only. When that is done, I ſow the ſeed, after being rubbed well to make it ſeparate juſt out of the hand, and ſet a perſon to follow the ſower with a common hay rake, and cover the ſeed lightly.

" Two people will ſow two acres a-day in this way; the expence is a trifle, and the crop is regular. After this is done, it is proper to ſend the double plough again down the furrows to clear them out, and then to draw a deep furrow acroſs the ends, ſo as to carry off the water in caſe of rain, and ſo the work is done.

" I have ſown at all times, from the middle of March to the middle of May; but, about the middle, or firſt week of April, anſwered beſt. The carrot is a ſlow growing feeble plant in its infancy; and therefore I found it neceſſary to perform the firſt weeding by the hand along the rows. Women or boys will perform this work well enough. When this is done, the earth is ploughed away from the rows into the furrows, as near the rows as the plough can work without injury to the plants.

" The foot of interval betwixt the rows is now hand-hoed, and the field may remain in this ſituation for about two weeks. But this time of expoſure muſt depend on the weather. If dry, it may be too long; if wet, it may be even longer with ſafety.

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The next operation is to return the earth to the rows, which is done by one round of a plough with a pretty wide earth board, and the double plough going once down each furrow. If the plowman is not ſteady and perfect in his buſineſs, it may require a woman or a boy to follow the plough, and uncover the carrots, which he will be apt to cover in the operation; for the earth muſt now be laid very cloſe up to the plants. When the carrots arrive at about the thickneſs of a quill or ſo, it will be proper to thin them, pulling them out by the hand to about four or five inches diſtance from each other in the rows. This operation is not to be performed while very young and ſmall, otherwiſe the carrots are apt to fork, and not attain their full length. When the weeds begin again to appear, the earth muſt again be ploughed from the rows, and the interval betwixt the rows hand-hoed, all which may now be done with freedom, as the plants will bear almoſt any uſage. The expoſure muſt, as above, depend on the weather; and the earth is to be returned as before, and the

ſame

ſame precaution uſed for taking off the water.

" The horſe-hoeing is now finiſhed, as well as the whole work, unleſs ſome weeds ſhould again make their appearance, which muſt be taken out by the hand.

" You will obſerve that I have two rows of carrots upon a five feet ridge. I have tried one row upon four feet ridges, but prefer the two rows for ſeveral reaſons; one of which is, that, owing to bad ſeed, being deſtroyed by vermin, or other accidents, little blanks in the rows will unavoidably happen. This, in ſingle rows upon a ridge, makes a blank of four feet; whereas it rarely happens that blanks will appear in double rows at the ſame place; and a blank in one row is partly made up by the others being better in that part. And if, even for ſingle rows, you make the ridges leſs than four feet, there is not room to horſe-hoe in a proper manner.

" I never take them up, to put them in ſand, as the gardeners do. This, for ſo great a quantity, would be very troubleſome and expenſive. I only take them up in cart-loads as they are to be uſed, and that

is

is done by ploughing them up, and then a ſingle man loads a cart in an inſtant. They keep in the ground very well, even to the end of April, and rarely ſuffer by froſt. But, if hares (which are very fond of them) or any animal, cut off the roſe on the upper end, very wet weather will rot ſome of them. I have uſed them in feeding horſes, cattle, ſheep, and hogs; every animal is fond of them; even geeſe eat them with greedineſs. But the moſt profitable way of applying them is in feeding horſes. They are the only root I know of, that, in feeding horſes, amply ſupplies the place of corn.

" I was in uſe, inſtead of two feeds of corn, to give the whole farm-horſes here one feed of oats, and a feed of carrots in the day, and found them thrive remarkably well. However, that I might find how carrots would do without any corn at all, for years repeatedly I ſet apart a pair of horſes, and, from about the firſt of January to the middle of May, gave them no corn at all, but carrots only, in place of corn, and fodder like the reſt. They got duly a feed of carrots for the others feed

of

of corn. The horſes went in a plough or cart every day, and all the ſpring, as we had much to do; they worked betwixt nine and ten hours a-day. They kept in very good order, rather better than the reſt, at leaſt much ſmoother and finer in the ſkin; and, before they had been a month at graſs, were by much the fatteſt horſes on the farm. I weighed the carrots, and found that a horſe's uſual feed was about thirty pounds; and this quantity each horſe had given him twice a-day till about the end of March; after which he got three ſuch feeds every day, till all the horſes went to graſs about the 12th or 15th of May.

"That I might form ſome notion of the produce of an acre, in the year 1770 and 1771, I took up the produce of a drill ridge as near the average of the field as I could gueſs, meaſured the length of the ridge, and had the produce meaſured and weighed, and from that calculated the produce of an acre, which amounted to about nine one half ton weight, or a little more.

"Carrots are the heavieſt of all roots for their ſize; and an acre of carrots in

in horſe food, far exceeds any crop of oats that land can produce.

" Our carrots, on an average, meaſured nine inches round the thickeſt part, and from 15 to 18 inches long.

" Carrots will do in any ſoil, if it is dry; but I have found in ſome very ſtriking inſtances, that this root has an averſion to water; ſo that it is needleſs to attempt carrots where there is a cold wet bottom. It is not abſolutely neceſſary that the ſoil be deep, if care is taken to raiſe the ridges as above deſcribed. In ſhort, they are an excellent nouriſhing food for cattle of every kind, an improving crop, in a high degree, for the land, and very profitable to the farmer; but, from the nicety of their culture, I am afraid they may not for ſome time be raiſed to advantage by the generality of farmers.

" I have repeatedly tried the culture of parſnips in the field; they are excellent food for cows, and produce fine milk and butter. Horſes, too, will eat them; but, as a crop, they fall prodigiouſly behind the carrots in weight and profit to the farmer; the ſame kind

kind of culture anſwers for them as for carrots.

" I have uſed cabbages as a common green crop for a long time. At firſt my practice was to raiſe them in ſingle rows on four feet ridges; but I found theſe too narrow to horſe-hoe, even for ſingle rows, to advantage, where the crop was luxuriant; and therefore laid out my ridges four one-half feet broad; and that breadth is abſolutely neceſſary for a horſe-hoed cabbage crop. The farmer ſhould plant half his cabbage crop with winter plants, and half, or at leaſt a part, with ſpring plants. The latter will keep much better in the winter than the former. There is a difficulty, in a late ſpring, to get ſpring plants early enough; but I have planted that kind ſo late as the 10th May with great ſucceſs. Cabbage, where they ſucceed, are a better food for cattle, and more profitable to the farmer, than turnips.

" I have cultivated turnips in various modes; but ſingle rows in four feet ridges I found anſwered beſt; the dung, of which the farmer finds a penury in moſt parts of Scotland, goes the fartheſt in this way.

The

The crop is eaſy kept clean, and the land in horſe-hoeing gets a full and clean tilth. Moſt of the broadcaſt turnip crops to be met with in this part of the country, from unſkilfulneſs in hand-hoeing, or inattention, are ſmall and puny, the field ſtored with every kind of pernicious weeds, which get leave to ſhed their ſeeds; and what is more ſurpriſing, in many parts of England the ſame things are to be met with, and muſt do ſuch harm as the ſuperior weight of the turnip crop (which I even doubt) can by no means compenſate.

"I think I have now taken notice of moſt things you mention, except the culture of trees and hedges. I have had a little practice in both; but you would meet with much better information on theſe ſubjects in many parts of your tour, than my little experience can afford. Shall only trouble you with a mode of planting hedges adopted in this part of the country by the Earl of Selkirk.

"His Lordſhip obſerving how little ſucceſs was to be expected from thorn hedges planted on the face of a ditch, in the common way, in a dry hard ſoil, the ditch ex-

penſive to cut, and, by the crumbling down of the looſe gravel, filled up in a ſhort time; at all times dry and acceſſible to cattle, together with the proneneſs of ſuch a ſoil to produce graſs and weeds, and the total neglect of the tenants in cleaning hedges, reſolved to try to plant his hedges in the face of a ſunk fence, built with dry ſtones, in the following method. Firſt, A cut is made two feet deep from the ſurface, perpendicular on the inſide, which is carried out in a ſlope to ſeven feet wide. To the face of this perpendicular cut is built a ſtone wall of about 18 inches thick up to the ſurface; it is then covered with a ſtratum of fine earth, mixed with a compoſt of marle, or ſuch like ſtuff. Moſs and marle mixed do as well as any thing. This is ſpread cloſe to the front of the dike thinly, ſo as to prevent the upper ſtones from lying too hard upon the thorns. In this pulveriſed earth the thorns are planted horizontally, projecting about two inches over the face of the ſtone-wall. The ſtone-wall is then built two one-half feet height above the thorns, and finiſhed. The earth thrown out of the cut is ſmoothed up to the

the back of the wall; and ſo the fence is completed.

" Very ſmall thorns will not anſwer, as they muſt have length to reach through the wall into the back earth.

" The thorns ſeem to thrive well in this way, ſo far as they have been tried, and entirely obviate the trouble of hoeing and weeding. They are liable to treſpaſs from cattle, eſpecially from the front ſide of the wall; to prevent which, a thick row of cut whins (very plenty here) is laid along the face of the dike at bottom, which anſwers the purpoſe tolerable well. However, to ſecure the young hedge more effectually from being eat with cattle, Lord Selkirk has begun to plant a row of ſweet brier (eglantine) a little below the thorns, in the face of the ſunk fence-dike, a plant which cattle do not eat. This plant grows up very faſt, and effectually guards the young thorns from treſpaſs, and is beſides very ornamental in dike rows. I am perſuaded this method of planting the ſweet brier wants only to be better known, to be more generally practiſed. I have now finiſhed this long epiſtle, and if you can gather

ther any thing from it that may be uſeful in the regiſter of your tour in this part of the country, I ſhall be well pleaſed."

Samuel Heron, a diſciple of Mr Jeffray, has taken from Lord Selkirk 330 acres on a nineteen years leaſe. His fund for improvement is an inexhauſtible ſtore of ſea-ſhells, more than ſufficient to ſtimulate the farmer, as well as the farm. Twenty tons are laid on an acre, each conſiſting of 23 buſhels Wincheſter meaſure. The ſhells are laid on the ſward. I ſaw ſmall fields of turnip and potatoes in drills; but, from ſmall beginnings, greater may follow. Peaſe are here alſo introduced, formerly an abſolute ſtranger in Galloway.

I unfortunately miſſed Mr *Agnew* of *Scheuchan*, the capital improver in that part of the country. His plan appears to be well fitted to the ſoil; and graſs is his object, for which he prepares the ground by a drilled crop, in order for barley and graſs ſeeds. He has lime and ſea-ſhells at command, which enable him to proceed with expedition. The reputation that this gentleman

tleman has of ſagacity and good underſtanding, with his ſucceſs in huſbandry, will probably produce him many diſciples, not only among his own tenants, but among others in the neighbourhood; and the influence of his example is beginning to be viſible.

The *Earl* of *Galloway* has made a conſiderable progreſs in improving his eſtate. He takes into his own hand farm after after farm; incloſes with ſtones; and, while that work is carrying on, lime and ſea-ſhells are ſpread, to lie on the ſurface till the incloſing be finiſhed. His Lordſhip undertakes no more ploughing than ſufficient to employ his horſes and ſervants when not engaged in leading ſtones. The firſt crop is oats; ſecond potatoes and turnip; third, barely with graſs ſeeds. After the incloſing is finiſhed, the farms are let, upon a nineteen years leaſe, at a conſiderable advance of rent.

At Garlieſton ſea-ſhells are laid upon graſs in dry ground with great ſucceſs. Theſe ſhells are inexhauſtible, to be got in every bay, and almoſt every where along the

the coaſt. What a bleſſing for this country, were the people ſufficiently induſtrious to take advantage of it!

Proceeding through *Sir Stair Agnew*'s eſtate, I ſaw excellent ſoil, execrably managed. The tenants are poor and torpid, Andrew M'Carlie excepted, the only improver here. He has got a new leaſe, and has begun to exert his talents with ſucceſs. He will deſerve to have a monument raiſed to his memory, if he can raiſe any ſpirit among his neighbours. In this neighbourhood, after a crop of oats, the practice is to take three or four ſucceſſive crops of big or bear. Mr M'Carlie explained the reaſon, that their oats are thirled, and not their bear. How brutiſh is ſuch a regulation! It is not only a temptation to fraud, but to ruin the land by bad cropping. In that part of the country, eſpecially in the iſle of Whithorn, the harveſt is conſiderably more early than in the Lothians. This year, the whole was ripe about the 25th of Auguſt. In the Lothians, harveſt did not begin before the 10th of September, and was not general till the 20th.

Mr

Mr M'Lurg, a merchant in the iſle of Whithorn, is attempting a better ſtile of huſbandry, though far from perfection. His zeal will carry him on; and probably, in a few years, he will be able to ſet a good example to his neighbours.

In paſſing along, I noticed what are called *mug ſheep*, in little parcels here and there. Theſe were long ago imported for improving their wool, which indeed is their ſole quality. It is a heavy dull creature, not apt to break through fences, which is a property that makes the farmer like them. You may ſee half a dozen on paſture near corn, coupled two and two, like hounds, to prevent their treſpaſſing on the corn, or attempting to go over the fences. It would indeed require eye-ſight to convince any one that the people were ſo ſtupid. Their wool ſells at 15 s. *per* ſtone, or 26 Engliſh pounds. Two or three fleeces make a ſtone.

The backwardneſs in agriculture is not from want of demand. There is always a briſk demand, either from Whitehaven, Liverpool, Greenock, or Glaſgow, and frequently from all of them at the ſame time.

I proceeded to *Glaſſerton* by a road finely made, to which the Hon. Keith Stewart contributed no leſs than L. 200 Sterling. The eſtate of Glaſſerton, belonging to that gentleman, is highly improved, the ſoil good, the ſituation fortunate, as ſea-ſhells and lime can be laid down on his land by water carriage; and, for the uſe of his eſtate, both for exports and imports, he has made a very commodious harbour. Shell-marle he has, beſides, in abundance. Sea-ſhells make a great improvement on meadow land that is dry; twelve tons to an acre; and, what is a great convenience, it is done in time of froſt. But this is not all. The rubbiſh of peat-ſtacks had been accumulated for centuries, without a ſingle thought of turning it to profit. Mr Stewart, reſolving to make a thorough trial, began to put this ſtuff in rows for turnip, inſtead of dung. The effect was ſurpriſing. No perſon could diſtinguiſh theſe rows of turnip from what were done with dung; and the product was equally good. For another experiment, a piece of irregular ground, of a mean ſoil, was trenched, and manured with 25 cart-loads of the ſtuff,

ſtuff, which was intimately mixed with the ſoil. Carrot-ſeed was ſowed, which yielded a very fine crop. A third experiment was to lay this ſtuff, from time to time, on a dunghill where winterers were fed; the ſtuff was ſpread on the dunghill, and, after it was covered with ſtraw and dung, another ſtratum, and ſo on. This mixture uſed for turnip in June, raiſed a great crop. Theſe are ſingular experiments, deſerving the attention of a natural philoſopher. Freſh moſs, I believe, will produce no ſuch effect.

As graſs is the chief object of this ingenious operator, as it ought to be of every gentleman farmer, I proceed to the means employed for bringing about that end. A thorough ſummer fallow on the ſtrong land eradicates every weed; ſhell-lime is ſpread on the ſurface as hot as poſſible, from which two good effects are expected, one to warm the ſoil, the other, to make a more intimate mixture with it than can be procured by ſlaked-lime. Where ſhell-marl is the manure, it is allowed to lie ſpread on the ſurface a few days, that it may be perfectly dried, and fitted thereby for being in-

timately mixed with the ſoil by good harrowing. Then the field is made up into ſtraight ridges, twelve feet broad, and the furrows well cleared, in which ſtate it lies all winter. Six buſhels oats, Wincheſter meaſure, are ſown on an acre; fifty are commonly the return. Second crop bear, after three furrows; four buſhels ſown produce from 40 to 48. Eight pound red clover, ſix white, four yellow, four ribwort, and one buſhel ryegraſs for each acre, are ſown with the bear; one year hay, and then paſture.

The drill huſbandry comes next. I found turnip, cabbage, kail, all in good order, and in a proſperous way. Carrot is raiſed in the following manner. Parallel lines are drawn with intervals of four feet and a half. The ſurface earth from both ſides is accumulated upon the line with the plough, and made broad enough for two rows of carrots one foot aſunder. The larger intervals are horſe-hoed; the ſmall intervals between the two rows are hand-hoed. Experience has made it certain that the double rows are greatly preferable to a ſingle row on a narrow ridge, two rows of the

the former being equal to three o the latter, owing to the greater quantity of ſurface earth heaped up from the wide intervals. No dung is given to this crop; but the ſpot for it is choſen the preceding year, and enriched with good compoſt well pulveriſed. Horſes are extremely fond of carrot, and like beſt what is immediately raiſed out of the ground. Yet this muſt not be truſted to where there is any proſpect of froſt. It is alſo a wholeſome food for horſes, and makes their ſkins always ſleek. The turnip and cabbage go to feed the young ſtock.

As ſoon as the ground is thoroughly dry after the green crops are removed, it is ploughed croſs, with a deep furrow to divide the heaped up earth, and to ſpread the dung equally, and then harrowed, for ſmoothing the ſurface and carrying off any remaining roots. One furrow ſtraights the ridges twelve feet broad. Then ſucceeds bear with graſs ſeeds, as in the other plan. The hay crop here is always better than in the other way of cropping, which may proceed from the dung operating more imme-

immediately than lime or marl. But the paſture in both is equally good.

Neither oats nor peaſe have been hitherto mentioned. Theſe find a place when the improved fields are opened from graſs, and alſo in the infield land. Oats is the firſt crop, peaſe the ſecond, and bear with graſs ſeeds the third. Potatoes, too, are accounted a meliorating crop, and a field is allotted every year for them. If I withheld my teſtimony in favour of Mr Stewart's huſbandry, my own mind would reproach me. There cannot be deviſed a better plan for preſerving the land in good heart. The operative part is carried on with the utmoſt accuracy: And, beſide the ſatisfaction of leading the way to good huſbandry in that country, he has found his own intereſt by raiſing the rents of his eſtate, and enabling his tenants to pay the advance rent more eaſily than formerly the low rent.

His incloſures are with ditch and hedge. The thorns thrive wonderfully from the great attention given to them.

Here are excellent cows, a mixture of Holderneſs with Merſe or Tiviotdale. They give

give much milk, and, with a Galloway bull, make a fine croſs breed. A bullock bred here weighed, when ſix years old, 100 ſtone Engliſh in the ſhambles, the tallow twelve ſtone. This bullock wrought one year in the plough.

Nothing eſcapes this ſurpriſing genius. I have reſerved the moſt intereſting article of all with which to cloſe the account. He is the firſt I met with in my ſurvey who ploughs with oxen only. He works them in pairs with harneſs, without a driver; and he never uſes four, except to break up ſtrong rough land. None of them are ſhoed, but thoſe for drawing the waggon. They are fed with ſtraw in winter, and with hay in ſpring, when worked twice a-day, which upholds them in good working order, without ever taſting corn. Is it poſſible, after this complete experiment, that farmers will ſtubbornly cloſe their eyes againſt ſo beneficial an improvement?

The road to *Sir William Maxwell* of *Monreith*'s lies through a hilly country, rocky, and covered with heath; but no ſooner is ſhell-marl applied, than tender graſs

graſs grows up inſtead of the heath. It is the practice to plough every ploughable ſpot to the top of the hills, between the rocks and round the rocks. The poor people graſp at a little fodder for their beaſts, and know no better. This country is naturally productive of good graſs; and great profit would be made by withdrawing the plough from theſe narrow ſpots, and converting all into ſheep walks. Why do not the proprietors give attention to this? Their own intereſt ſhould be an urgent motive, however little regardful of their poor tenants.

As Sir William Maxwell's eſtate is bounded on the weſt by the bay of Glenluce, it lies open to the ſea ſpray, an enemy to planting. Willow and elder reſiſt the beſt, but grow ſlowly. Sir William, however, is attempting plantations, which anſwer eaſt and north from his houſe; and he propoſes to proceed gradually weſtward. He prepares the ground both by ſpade and plough, and raiſes high dikes for ſhelter.

This eſtate is happily ſituated for manure, plenty of ſhell-marl within it, and acceſs to ſea ſhells and lime by means of a

harbour

harbour made by the proprietor, which, at the ſame time, is a ſecurity to ſhips in a ſtorm. Lime and ſhells from Whitehaven, of excellent quality, is put on land for 12 d. or 13 d. pence the Carliſle buſhel, equal to three Wincheſter buſhels; and ſea ſhells for two ſhillings *per* ton, equal to ſeven barrels.

This eſtate contains about 15,000 acres. It extends ſix miles along the coaſt, and two or three miles inward, all fitted for every improvement that can ariſe from good tillage and plenty of manure. What a rich treaſure is here offering itſelf to thoſe who will be but induſtrious! What better ſituation would any man of ſpirit wiſh for than to be maſter of ſo much good land, to give him employment for raiſing his family, and for promoting the good of his country! The King of Britain has no poſt or penſion to beſtow equal to this. Shell-marl here has a wonderful operation, tho', in the general opinion, given with a hand too liberal, commonly more than 200 bolls Linlithgow meaſure *per* acre. Sir William has commenced farmer, and with great ſucceſs, ſo far as he has proceeded. He is very

ry capable of making it a buſineſs; and if he perſevere, a long life will ſecure a great eſtate to his family. To that end, he gives encouragement to his tenants, and is at pains to inſpire them with an improving ſpirit. Incloſing with ſtone dikes near the coaſt goes on briſkly; and, if the ſame ſpirit be kept up, the whole will be ſoon incloſed.

Wool in this pariſh of Mochrum bears a great name. It is clothing wool, and very fine; fourteen ſhillings *per* ſtone, or 26 pounds Engliſh, is the ſelling price. The ſheep there are original; no remembrance of any change of breed, nor of any attempt to improve either the body or fleece. Nor is any attention given to procure them plenty of food, being left on a bare paſture, ſcarce ſufficient to keep in life. But the ground is dry, producing naturally ſweet graſs. The wool is indeed fine, but much mixed with hair, which I attribute to the want of ſalving, no ſuch practice being known along this coaſt.

Nothing appeared worthy of remark till I approached Glenluce. *Major Roſs* makes

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a figure on his fields; incloſures of different kinds, both ſtone and quicks, all in good order, trees on the high grounds, fine paſture below, hay and corn good. Horned-cattle in a field of rich paſture attracted my eye. In I went; they were cows of a mixed breed, with a large polled bull, a true Galloway. Much mortified was I upon finding the Major from home. Upon requeſting him to favour me with an account of his improvements, he moſt obligingly ſent me the following letter.

SIR, *Balkail, Nov.* 1. 1777.

"Your moſt flattering letter to me, as a farmer, I was favoured with; but being from home for ſome time prevented me acknowledging it ſooner. My ſmall farm, from the wildneſs of the country around it, muſt attract the traveller's eye; whereas, was it in an improven country, it would paſs unnoticed. It only contains about 400 acres in all, part my own property, part feued on a leaſe of 100 years, upwards of 80 to expire, and part on a leaſe of 42 years, about 37 to expire. From the length of the leaſes, I have been induced to im-

prove mountainous ground, that otherwiſe I would not have engaged with, from the ſeverity of the labour. However, with perſeverance, I have got all the arable of it limed, and the crops have pretty well compenſated for the expence, and the land is now worth above four rents. As to the quantity of lime laid on the acre, my maxim is, from 50 to 90 Carliſle buſhels *per* acre, according to the nature of the ſoil; and before I lay it on, I make the ground as dry as I poſſibly can by covered drains, and then pulveriſe the ſoil until I make it as fine as I can, burning all the roots of heath, huſky graſs, and every root that is brought up by the break harrows. I for the moſt part take after the lime two crops of oats, and lay down the third crop with barley or big; at ſame time, always giving a dreſſing of dung, unleſs I take a crop of turnip before the barley, in which caſe I dreſs the ground for them. The turnip crop I ſow broad-caſt, and feed young cattle with them on the ground, as we are too far from a market to fatten them. My breed of black cattle is eſteemed the true Galloways, and the beſt in Scotland. My father was

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at leaſt 30 years before he brought them to what they now are, and with unwearied attention and pains, which at laſt was crowned with ſucceſs.

" As to planting, my quantity is too ſmall to be of conſequence. Thoſe I planted in the glen thrive exceedingly, and thoſe on the top of the hill, although much expoſed, are coming forward pretty well; my method with them is, to the ſtorm I plant the elder, being a quick grower, then I mix a pretty broad ſlip of fir, birch and plain; within is oak, larix, beech, and as many ſorts of trees as I can raiſe. Upon the whole, the birch and elder do beſt; the others are thriving, and I dare ſay, if the ſhelter anſwers, will be good timber, the ſoil amongſt the rocks good, being chiefly a hazle mould. In the low ground, I have only to keep them wed until out of the reach of graſs, and keep cattle from them, and every ſort of tree will grow to timber.

" In five or ſix years after a field is laid down in graſs, I give it a dreſſing of dung or compoſt, by which I find myſelf fully paid from the richneſs and quantity of graſs it

it brings up. Indeed, I could fatten cattle on at moſt two acres *per* head, and, in ſome of my parks on an Engliſh acre and an half; but want of markets, as I ſaid before, is too great an objection to follow that plan, being at the mercy of one, rarely two, merchants for that ſort of cattle."

If fame ſpeaks true, Mr *M'Dougal* of *Logan* makes conſiderable advances in every branch of agricultural improvement; he is looked up to by all good improvers, both gentlemen farmers and tenants. On that account, I wiſhed moſt vehemently to wait upon Mr Logan, and to note the progreſs of his improvements; but the length of circuit ſtill before me, and my time now nearly exhauſted, I could not venture to proceed into the Mull of Galloway, where Mr Logan's ſeat is, as it carried me out of my line of the preſent ſurvey.

I waited on the *Earl* of *Stair* at *Culhorn*, and got information of his plan of farming. His Lordſhip's breed is of true Galloway cattle, which, by reputation, ſell at high prices. His Lordſhip thinks the moſt

ſubſtantial

ſubſtantial improvement for a gentleman is to procure induſtrious and improving tenants. He treats them kindly, and is ever ready to give them good inſtruction. But words will not do; example is neceſſary; and in that view he takes farm after farm into his own hand, and, upon dreſſing high, lets them out to the moſt enterpriſing. He has done a great deal in that way; but there remains ſtill more to be done. Many fields, thus improved, did not yield in the ſtate of nature ſixpence *per* acre, but are now let from 10 to 15 ſhillings. His tenants are now beginning to follow his example, and to take the improvement of their farms off his Lordſhip's hand. The great fund for improvement in that country is lime, brought raw from Ireland; it is burnt in a draw-kiln, and can be laid on the land, all expences borne, for about L. 3 : 10 : 0 *per acre.*

The Earl holds 400 acres in his natural poſſeſſion, as a farm for the family conveniencies. The culture on it is conducted very properly; turnip, fallow, wheat, barley, oats, hay, abundantly plenty. Above all, I admired a large incloſure, on account of

of the rich paſture in it, and the ſubſtantial wall that ſurrounds it, ſix feet high, copped in the manner of Galloway ſnap-dikes, but ſo well and artfully done, that neither man nor beaſt dares to attempt getting over it. This fine park ſerves for ſheep walk, deer park, horſes and black cattle, all feed promiſcuouſly on it, and all are plentifully ſupplied with food, becauſe all are fat. The ſight is beautiful, as well as profitable; for every kind keep by themſelves, and make a regular circuit round the park, following out their daily paſture. I admired the ſteers, quays, and heifers, that are bred from the cows at Culhorn, more than any of the other kinds in the park, on account of their ſize and very fine ſhape. They are the offspring of 30 cows, and none are reared but the very fineſt of the calves, they being intended for a ſample of good cattle in the country, worthy of imitation by all improvers of land and black cattle.

His Lordſhip's extenſive plantations will make a conſiderable figure in a few years; and, as fewel for firing is not plenty in the country, the fir trees will render an excellent

excellent ſupply of fewel, by the prunings and weedings of the plantations.

Hugh M'Michan is one of his Lordſhip's improving tenants. His farm conſiſts of 300 acres, in the improvement of which he makes a quick progreſs. He cannot fail to ſucceed; and his example is likely to have a greater influence on his brother tenants than that of the Earl, who is removed at a greater diſtance from them.

Mr Leggat, provoſt of Stranraer, rents a farm of 1000 acres, at L. 200 Sterling *per annum*. It is moſtly hill and paſture land. That of it in the valley is bounded by the great Loch-Ryan, which affords him the conveniency of procuring ſea-ſhells from the weſtern coaſt of the Highlands or Iſles, by veſſels returning from the fiſhing. The ſhells are pure, and reduced almoſt to a powder; on that account, the effects on the ground are quick, and even operate as a powerful manure the firſt year. Lime, too, is uſed, and the Provoſt never overcharges the ground by cropping too much; for he lays it off with graſs

graſs ſeeds the third or fourth year; this a leſſon worthy of the attention of every actual farmer.

Incloſing with ſtone-walls, ditch, and hedge, is alſo going forward; theſe anſwer his expectations; but thoſe fences attempted on the muir, by banks reared of earth and whins, do not. If a ſevere froſt come on, all is deſtroyed.

Craigcaffie is commodiouſly ſituated on the ſide of Loch-Ryan, for importing lime from Ireland, and ſea-ſhells from the ſouth coaſt of Galloway, the weſtern iſles, or Highland ſhores; for none are to be found in his part of the country. Mr Nielſon the proprietor is full of ſpirit, and attends cloſely to the operations he is carrying on. He holds, that lime is not fit to be put into the ground till it be thoroughly ſlaked with water, and that it has the beſt effect upon land immediately taken up from paſture; and at that time about 120 Lothian bolls *per* acre are ſpread on the ſurface, and harrowed in with the oat ſeed. The ſecond crop is alſo oats; but bear or barley, if the ſward be fully rotted after three ploughings,

ings, with graſs ſeed, and careful rolling. I ſaw lime carried in carts up a ſteep ground, over rock, which was a bold enterpriſe, as in many parts the cart was ſupported by men, to prevent it from overturning. The lower fields are ſubject to water; but care is taken to carry it off in open drains. The ground is cleared of ſtones, which are employed for fencing. Dung he values highly, and collects every vegetable, and every ſort of rubbiſh, to augment the dunghill. The cattle, in hot weather, are all fed within doors; the dunghill, as well as the cattle, profit by it.

This gentleman venerates ſo much the true Galloway breed of cattle, as to hold in deriſion every attempt to improve it.

He works with two horſes in a plough, which, in ſummer, are yoked at five in the morning, in order to finiſh before the heat of the day. When carrying lime, they continue in the yoke from five in the morning till twelve, reſt three hours, feeding on clover in the houſe, and then work till eight. They feed again on clover till ten, and then are put out to a graſs field. All his other operations in huſbandry are

conducted with the ſame ſkill and expedition.

Before finiſhing the report of my ſurvey of this extenſive region, my heart burns to recommend a practice begun by one or two eminent improvers, which is, to baniſh horſes, the moſt expenſive article of huſbandry, and to employ oxen only. The advantages of oxen over horſes are immenſe in every country; but, in a breeding country like Galloway, there can be no excuſe for preferring horſes, but a ſtupid adherence to cuſtom. A bullock kept perfectly idle till the time of ſale, will not ſell a farthing higher than one that has been moderately wrought in the plough for two years; and yet much more profit is made by the latter, conſidering what is ſaved in the expence of horſes.

It is kicking againſt the pricks to declaim againſt a practice univerſal in this country, of allowing the calf to ſuck while the maid is milking. And yet one would think a ſingle hint ſhould be ſufficient to ſhow the ridiculouſneſs of it; for, not to talk of dirtying the milk, a quantity muſt be loſt in the ludicrous ſtruggle between the calf

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and the milk-maid. Why not proclaim it for a ſhow, and take money for the exhibition? I have known many a ſhow that drew people together, leſs apt to provoke laughter.

But I proceed to a more ſerious matter. Fine clothing wool is produced all along the coaſt of Galloway, particularly in the pariſhes of Penningham and Mochrum, the latter being the finer of the two. The ſoil in the pariſh of Mochrum is tender and dry, and ſends up a delicate paſture graſs, which makes me conclude that the ſoil and paſture contribute to fine wool. I have no doubt but that the nature of the ſheep do alſo contribute, and a moderately warm climate. Neither muſt proper ſalving be left out, which undoubtedly contributes to the health of the animal, and no leſs to the quality of the wool. Minnygaff has a reputation for ſheep, but only for being of a larger ſize; for the wool is coarſer than in the pariſhes mentioned, as Minnygaff is a high country, and the paſture coarſe in proportion. The breed of cattle is in Galloway carried on to great perfection. The knowledge of agriculture, and of enrich-

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ing land, is advancing faſt among the gentlemen, and will in time be taken up by the tenantry. Sheep are almoſt totally neglected in a country more fit for them than any other part of Scotland. This is wonderfully bizarre. One or two gentlemen are turning their thoughts that way. I heartily wiſh them ſucceſs. If they perſevere, they will find ſheep the moſt profitable article of all that can be drawn from the ground. Formerly the management of ſheep was very little known, and there was no acceſs to advice. Now, they are ſo much ripened by experience, that a gentleman who wiſhes the improvement of of his ſtock, has acceſs to the beſt advice, and muſt blame himſelf if he follows a wrong courſe.

Ayrshire.

THIS country offers to the diligent inquirer a very buſy and very agreeable ſcene. The activity of many gentlemen in huſbandry improvements, and the extent of theſe improvements of late years, merit an ample reward, which a grateful ſoil never with-holds from a judicious cultivator who beſtows liberally on his operations.

My entry to this county was by Glenap, a narrow vale between high hills, moſtly green, partly heath, extremely proper for a ſheep walk. Among the many little tenants in the vale, I found none that had either knowledge or inclination to improve their ſituation. Each of them have a few black cattle and a few ſmall ſheep; but the tenants are many, and the whole ſtocks together are far too numerous for the paſture; whence both tenants and ſtock are ſtarved, and little gained for paying the landlord's rent. Theſe tenants, however, are ſo far

improved, as to ſalve lightly, which produces ten ſhillings for the ſtone of wool, inferior, however, to the price in Galloway for the ſame ſort of ſheep, owing probably to high ground and ſtormy climate. From Glenap to Ballentrae, a rough coarſe country, hill and heath, and none reſiding in it who ſo much as think of making a ſingle ſtep out of the common road. From Ballentrae, a neſt of ſmugglers, to Girvan, I met with nothing worth obſervation till I came to Ardmillan. The proprietor, Mr Crawford, has attended to his intereſt. Paſture is his object, which has led him to incloſe with ſtone walls even the hilly ground. Every thing around him has an agreeable aſpect.

Girvan is a clean little town, and the inhabitants induſtrious and thriving, particularly the ſhoemakers, who tan their own leather, and make ſhoes for America, which are carried to Glaſgow. The village and lands around belong to Mr Hamilton of Bargeny. Moſt of the inhabitants have built neat houſes for themſelves, on land leaſed to them for hundreds of years, in all

all reſpects equal to property. This is a much better method, both for landlord and tenant, than feuing. The latter is a moſt intolerable burden upon ſmall property, and throws the poor people into the hands of moſt rapacious ſcriveners, who, every thirty or forty years, draw from them the value at leaſt of their property. A leaſe, on the contrary, is tranſmitted to heirs and ſingular ſucceſſors, without any expence, which entitles the landlord to draw more rent than a farmer can afford to pay. The ſoil, being light and ſharp, is eaſily managed, which is a great comfort to poor manufacturers. They have ſea weed in abundance, which is their chief manure. As ſoon as any quantity comes to ſhore, the women carry it on their backs, and put it in ſmall coils like hay, where it is to be uſed for the potatoe crop. When the potatoe ſeaſon approaches, it is ſpread out to be dried, and then put on the ground. The men are thus left to carry on their own buſineſs. They have few horſes, and theſe are employed in tilling. The potatoes are all planted in drills, the ſea weed being put into the furrow. Bear follows, next oats,

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and then again potatoes. Every crop is good, and the induſtry of the people rewarded. No rent is better paid; and there is a great number of acres thus occupied.

The eſtate of *Bargeny* contains at leaſt 30,000 acres, whereof 1200 are arable, or capable to be made ſo. What is not arable feeds black cattle and ſheep. The laſt might be turned to great account by proper management of paſture, and to ſtill greater, were any rational attempt made to improve the ſheep and the wool.

Mr Hamilton, by a chearful and kindly behaviour, has the choice of the beſt farmers; to theſe he gives long leaſes, and, by his own practice, teaches them the beſt method of improvement. Upon any complaint of a hard bargain, it is a rule with that gentleman never to bind a poor tenant to his ruin, and accordingly ſets him free. Tho' this, I am convinced, be done from a motive of humanity and compaſſion; yet I am far from being certain but that Mr Hamilton will, upon the whole, be a gainer even in point of intereſt. Not only will the beſt tenants flock to him, but will be frank

frank in their offers, when they know that they cannot be ſubſtantially hurt.

Lime-ſtone and coal are found in this eſtate, and Mr Hamilton is working both for his own intereſt and that of the neighbourhood.

Some time ago the roads were ſo bad as not to admit the ſmalleſt wheel carriage. This public ſpirited gentleman has been very diligent in getting good roads made; and for that purpoſe has contributed out of his own pocket no leſs than L. 500 Sterling; a rare inſtance, but well deſerving to be imitated. One immediate reward his patriotiſm has procured him, which is, to increaſe conſiderably the demand for his coal and lime.

His low lands lie on both ſides of Girvan water, moſtly dry, and a good mixed ſoil of earth and gravel. But here I avoid entering into particulars; for, though the culture is carried on in the approved method, yet there is nothing ſingular to afford any new inſtruction. The only article I venture to criticiſe is that of graſs ſeeds ſown with barley; three pounds red clover, ſix white, three yellow, three rib-

wort, and two buſhels ryegraſs. What I object to is his ſmall quantity of red clover, where hay is intended for the firſt crop: Better far to with-hold one buſhel of ryegraſs, and the yellow clover totally, which will afford ſpace for ſix or ſeven pounds more of red clover, as without that quantity the hay crop muſt be very ſcanty.

The moſt laborious part is to bring into tilth the higher grounds covered with heath and full of large ſtones. But it was a great temptation to beſtow labour and money, to find the under ſtratum of this muir a good ſoil upon a dry bottom. The ground has been entirely cleared of ſtones, the large ones blaſted, in order to admit the plough. It is ploughed and croſs ploughed, limed and formed into ridges 15 feet broad, directed ſo as to carry off the water. Being thus brought into tilth, it is cropped with judgment, according to the nature of the ſoil. The rent of this land, in the ſtate of nature, was under fifteen pence *per* acre. Upon what is improved as above, he put a rent from 10 s. to 13 s. 4. d; and if he perſevere, of which there can be no doubt where the profit is ſo great,

he

he will leave a great eſtate to his heirs, and at the ſame time enrich the country.

Much ground is planted by Mr Hamilton, both for ornament and ſhelter, which, with the old plantations, make a fine appearance.

I am glad to find the dawn of good huſbandry beginning to peep out here among the tenants. *John Johnſton* makes ſome figure in tillage, in liming, and graſs-ſeeds. He was encouraged by Mr Hamilton with a ſubſtantial dwelling-houſe and proper offices. Others copying from him are doing better than formerly. *Gavin Park*, a young man, ſtimulated by the ſucceſs of ſome of his neighbours, has taken a large farm from Sir John Cathcart, and ſhows a good ſpirit in his operations.

It is very diſcouraging that Mr Hamilton hitherto has not ſucceeded with his tenants in the hilly parts of his eſtate to attempt any reformation on their ſheep. To improve their numerous flocks, were it but a ſhilling *per* head, would produce a very large ſum.

As

As I paſſed along in my way to Kilkerran, I was delighted to ſee corn and clover fields in excellent order, and hedges growing vigorouſly, all done by Mr Thomſon miniſter at Dalry, a man of an amiable character. The land belongs to Sir Adam Ferguſſon. The operations of William Jackſon, another of Sir Adam's tenants, have every appearance of good huſbandry, regularly conducted. Good example is infectious as well as bad; and there is no reaſon to doubt but that theſe gentlemen will be imitated.

On a nearer approach to Kilkerran, a narrow, but pleaſant valley, of a good ſoil, opens to view. There, in different fields, I ſaw various operations of huſbandry carried on with induſtry and attention. The incloſures in perfection, both hedges and ſtone walls. Lime is the only manure uſed. I ſaw a number of ſheep in a large incloſure oppoſite to the houſe, of different kinds, Dorcheſter, Cully, Bakewell, and alſo the breed of the country. Sir Adam was from home. I was much diſappointed, as I reckoned upon accurate information from Sir Adam, of the different branches

ches of improvement carrying on briſkly here. But this diſappointment is amply made up by a letter I had the honour to receive from him, which gives a very accurate, and no leſs ſatisfactory, account of the progreſs of agriculture in that part of the country, chiefly owing to Sir Adam himſelf. I ſhould think it criminal to withhold this letter from the public, though I was not permitted to enter it into my report. Modeſty is a pleaſing virtue; but I have no notion that it ſhould entitle a man to hide his more active and more eminent virtues.'

SIR, *Kilkerran, Sept.* 26. 1777.

"I have the favour of your letter, and am exceedingly ſorry that I was ſo unfortunate as to be abſent when you called at this place in your progreſs through this part of the country. I not only regret it on my own account, but becauſe I ſhould have been glad to have contributed to your obtaining ſuch information as might have promoted the plan of the truſtees; which I could have done more effectually when preſent, than

than by any thing I can write in the compaſs of a letter.

" With regard to this part of the country, if you never was in it before, you would, no doubt, obſerve in general, much to find fault with—a great deal of land uncultivated, and the culture of other parts very imperfect. But if you have been here ſome years ago, and compare the ſtate it was then in with that in which it is now, you cannot fail to have remarked a very great alteration. To me, who remembers this country when there was ſcarce an incloſure in it but ſome few round the gentlemen's houſes, when there was not a pound of graſs ſeed ſown from one end of it to the other, and when the whole attention of the farmer, and the whole dung of the farm, were applied to a few acres, while the reſt was totally neglected, the difference is very ſtriking.

" With regard to myſelf, my object has been to turn the farm in my own poſſeſſion into good graſs as ſoon as poſſible; and the whole uſe that I have made of the plough has been with a view to that. The trouble and expence that I have beſtowed

on

on this object has been much greater than any perſon would conceive from the quantity of ground that I have improved, without conſidering what it was in its natural ſtate. You cannot fail to have obſerved the multitude of large ſtones upon the uncultivated fields in this country; moſt of theſe are of ſuch a ſize as to require being blaſted with gun-powder before they are carried off. As the ſoil runs naturally to wood, there is a neceſſity for clearing the fields of ſhrubs and buſhes before they can be properly ploughed. If to this is added the expence of draining, you will not be ſurpriſed at my ſaying that many fields coſt more than their original price before the plough is put into the ground. That particular field, which you obſerved as ſown down with graſs this ſeaſon, was, when I began with it, ſo remarkably covered with ſtones, as to make it a matter of wonder how the tenant could contrive to plow it at all; yet now there is not a ſtone upon it ſo large as your fiſt. After clearing the ground, my practice is to lime it on the graſs; in doing which, we *compute* the lime laid on to be about an hundred bolls

to

to the Scots acre; though, as I have the lime within my own farm, and am not under the neceſſity of meaſuring it, as I ſhould be, were I to buy it, I cannot anſwer for the perfect accuracy of the computation. I then take two crops of oats off it. The third year I fallow it carefully, and, in the ſpring following, dung it well, and ſow it down with barley and graſs ſeeds. Where the land is not intended for being continued in hay, the graſs ſeeds I ſow are ryegraſs and white clover, which I cut the firſt year, and afterwards throw it out into paſture. I am ſenſible that two crops of oats running is not the beſt huſbandry; but oats being the hardieſt grain, and anſwering better than any other while the land is rough, and not properly broke, it is for this reaſon that I follow the method I have mentioned. The only variations I have made from this method are, that ſometimes I take a crop of peaſe inſtead of the ſecond crop of oats; if the land is cleaner of ſtones than uſual, I have ſometimes ſown turnip in the following year; and ſome once or twice, I took wheat inſtead of barley the laſt year. But, though that has

anſwered

anſwered with me, I do not approve of it, as the land is apt to become ſo ſtiff in the winter, that it cannot be ſufficiently opened in the ſpring to receive the graſs ſeed, without deſtroying the wheat. I ſometimes alſo ſow down with oats inſtead of barley.

"I have mentioned to you, that my object is to get my land, as ſoon as poſſible, into good graſs. I am partly led to this from a deſire to have as much dreſſed land round my houſe as I can. But, independent of this conſideration, I am convinced it is better adapted to the climate of this country than tillage.

"Though the land in Carrick (of which I wiſh all along to be underſtood to ſpeak) is of a lighter nature than the other diſtricts of Ayrſhire, and in many places has a dry gravelly bottom, yet the rains in ſpring and harveſt are very unfavourable for raiſing corn. It has, at the ſame time, ſuch a tendency to graſs, that, except for the firſt and ſecond year, provided it be made rich enough, it will ſhoot up paſture almoſt as good without ſowing as with it. For theſe reaſons, joined to the great ſteepneſs and irregularity of the ſurface, I con-

ſider graſs, and not corn, to be the proper crop for this country.

With regard to cattle, of which a great number are bred for the Engliſh market in this country, they are pretty much the ſame with the Galloway breed, moſtly hummelt. They are very hardily bred, being never in a houſe, (except ſuch as are intended for milk) and when put into good paſture, they riſe to a great ſize.

" With regard to ſheep, of which a great number are bred on the high grounds, I am apt to believe that they are not ſo well underſtood as the black cattle. Conſiderable attention has, however, been beſtowed of late on mending the breed of ſheep. A number of gentlemen have brought in ſheep from England, and the farmers are ſenſible of the importance of mending the breed, by procuring good rams. I have, however, great doubts how far it ever will be practicable to introduce the Engliſh ſheep into our hills. In the low and ſheltered grounds, they anſwer very well; and the advantage, particularly with reſpect to the wool, is very great. But, on the high and expoſed mountains, I am perſuaded

perſuaded they would not anſwer. The utmoſt length that I think it would be ſafe to go, would be to endeavour to raiſe our own breed by a mixture with the Engliſh; and even that ſhould be done with great caution.

"The only part of your letter that, I think, remains unanſwered, is what relates to the tenants. Now, though I have ſeveral tenants who deſerve commendation for their attention and induſtry, yet I cannot ſay there is any one who has made himſelf ſo remarkable as to deſerve being particularly mentioned. What I have ſaid of the expence attending the improvement of land here, will ſhew how difficult it muſt be for any man, without a great ſtock, to carry it very far. But, though I cannot name any tenant in particular, yet I can ſay in general, that there is a remarkable alteration to the better, both in their knowledge and management, ſince I began to attend to country affairs. Many of them had an averſion to having their lands incloſed; whereas now, no farmer, ſuch as I would chooſe to have for a tenant, will take a leaſe, unleſs the lands are incloſed; the

the conſequence of which is, that, if I live three or four years, every arable farm I have will be incloſed. They are almoſt all getting into the practice, more or leſs, of ſowing graſs ſeeds; and inſtead of running out their lands, by ploughing them up as ſoon as they are fit to produce a poor crop of corn, as was the practice formerly, they are now ſenſible of the importance of having them in good heart; and the diſtinction of croft and field land, except among ſome of the pooreſt ſort, is, in a manner, entirely aboliſhed."

Mr *Whiteford* of *Dunduff*, a ſpirited farmer, applies himſelf with ſkill and induſtry to improve his eſtate, originally a moor covered with heath, naturally dry, or made ſo by art. Lime is his great fund for improvement, to which he has added ſhell-marl lately diſcovered. To get his fields into graſs is his chief aim; becauſe, in a rainy country, as this is, corn is but a precarious crop.

He deals in turnip, cabbage, and kail, in drills; but in new ground paired and burnt, turnip is ſowed broadcaſt, and eat with ſheep

ſheep on the field. Carrot is alſo ſowed broadcaſt. And this curious improver has alſo ventured on ſaintfoine and lucerne in drills, nine inches aſunder, and handhoed.

Here is a fine wood of timber-trees on the banks of a river. Several new plantations are added of fir and other timber. There is a neat barn floored with bricks at both ends laid in ſand, the one for ſtoring the corn, in order to be threſhed, the other to hold the grain. This method deſerves to be imitated.

He uſes the chain-plough drawn by two horſes.

Wages in this part of the country are moderate. A labourer conſtantly employed gets eightpence *per* day, and there are plenty of them, which is a favourable circumſtance for carrying on the operations of huſbandry.

As I approached toward Kirkmichael, art and good huſbandry appeared, and the marks grew ſtronger nearer the village. A rich crop of hay, good paſture, oats, bear, peaſe better than ordinary, and potatoes in drills. The miniſter was the operator.

I paſſed on to Maybole, where there is good ſoil ill managed, and yet, by dung from the town, produces now and then weighty crops. The miniſter and Bailie Pyper muſt be excepted, who ſummer fallow regularly, give dung, ſow bear or barley with graſs ſeeds, red clover 18 pounds, ryegraſs four buſhels *per* acre. It is a pity but that ſuch willing improvers ſhould be taught that half the quantity of ryegraſs would anſwer as well. They get, however, from 200 to 300 ſtone of hay *per* acre, the ſtone being 24 pounds Engliſh. Hay is taken three years, and then oats three years, after which fallow as before. Wheat is alſo interſperſed. Such ſevere cropping requires better ſoil than is to be found about Maybole; but it would appear that they truſt greatly to the town's dung. When the demand for that commodity increaſes by more improvers, theſe two gentlemen, it is to be hoped, will reform their practice, and be more cautious not to run out their ground.

Captain Kennedy near this place is an intelligent farmer, eſpecially as to the management

nagement of ſheep. He poſſeſſes an incloſure of 800 acres in Carrick-muir, his own property, ſurrounded with a good ſtone dike. In this incloſure 1200 ſheep paſture, ſummer and winter, without getting any dry food, not even in the ſevereſt weather. Yet it is a high ground; but much of it is hilly, which affords ſhelter; and being cloſe to the ſea, no ſnow lies. At his entry in 1764, the ſtock on the ground was valued at L. 5 *per* ſcore with their wool on, including all kinds, ewes with their lambs, hogs, and dimmonts three years old. To improve this ſtock, Tweedſmuir and Carrick were ſearched for the beſt rams; and, by croſſing and re-croſſing with the original ſtock, a conſiderable reform was made in a few years. His ſtock would now ſell for double the valuation above mentioned. His three years old wedders ſell at 12 ſhillings in November or December. His ſtock are now of the hardy black-faced kind, a ſhort body, a good ſhape, and not long in the leg. To try the effect of ſmearing, he made the following experiment. He reſerved from ſmearing, ſeveral years, ten or twelve ſheep of his

flock,

flock, which were the whole time inferior to the reſt of the flock, both in fleſh and wool. They were longer of taking on fat, and the wool was hairy, coarſer, and harder. Mr Kennedy informed me of a race of ſmall ſheep bred at Dunart in the pariſh of Maybole, that carry very fine wool. Their paſture is on a range of hills on the ſea coaſt. The graſs indeed is fine, nor is the climate very cold. The wool commonly ſells at 15 ſhillings *per* ſtone. I was alſo told by this gentleman of one John M'Kie at Tarryfeſſoch, who farms more than 13,000 acres of hill land belonging to the Earl of Caſſillis. His rent is L. 150, and he paid L. 1000 of graſſum for a nineteen years leaſe. The ſame man poſſeſſes 1400 acres more from Lord Galloway. This is a bold undertaking; but, as I am told, he has ſpirit and induſtry equal to it.

Improvements on this ſide of the country are going on apace. The Earl of Caſſillis leads the way, and his tenants creep on the beſt way they can after him. When the ſpirit becomes more general, emulation will accelerate their motion.

When

When I paſſed by Cullean, the Earl of Caſſillis's, I was wet through all my clothes with a heavy and conſtant fall of rain, which obliged me to puſh forward to Ayr, and by this unfortunate accident I miſſed ſeeing the Earl's improvements. To make up that loſs, I prevailed on Captain Kennedy to procure from Mr Bulley, the Earl's operator in improvements, a full ſtate of all his operations at Cullean, which he has given in a very diſtinct and accurate manner, that ſhows his attention and abilities in the improvements of huſbandry. The public, I think, will be inſtructed by it.

SIR, *Cullean, Feb.* 6. 1778.

"I received your letter in Auguſt laſt, inquiring into the ſtate of the Earl of Caſſillis's improvements at this place, which I ſhould have anſwered ſooner, but was diſſatisfied that you did not come this length when you was ſo near as Maybole; as you would then have ſeen that it was impoſſible in ſo ſhort a time as I have been here, to have got into a regular culture and courſe of crops; and therefore could

not give you that information which ſeems to have been the intention of your inquiries. However, as Captain Kennedy informs me that you have lately wrote him you wiſhed to hear from me, I here ſend you an account of my operations ſo far as I have gone; but, in the firſt place, ſhall deſcribe the nature of the ſoil, and the condition I found it in.

"I came here in December 1773, when I entered to the improvement of a farm of near ſix hundred acres, the greateſt part of which had been incloſed by the late Earl of Caſſillis about ſixteen years with a belt of planting, and divided by ſmall ſtrips, which are now giving pretty good ſhelter to ſome part of the ground. The ſoil is various, but generally light and thin, upon a very hard till, under which is chiefly freeſtone rock, expoſed to the north and weſt, and, like moſt hanging ground, full of ſprings and wet ſpots. Moſt of the land was lying as it came out of the hands of ſeveral ſmall tenants, except about thirty acres which had been limed, but quite worn out, and in the worſt condition of any. There was ſcarce five

acres

acres together in any field in the ſame condition; three or four acres of old croft in one part, ſo much outfield in another, and many ſpots of half an acre, or an acre, which never had a plough in them. In every field the old ridges were lying five or ſix different ways, ſome very high and broad, others as narrow, with high gathered head-ridges lying various ways croſs the field as the land had been ploughed. The whole farm did not produce hay and corn ſufficient for the horſes, and almoſt every neceſſary for the family was bought, except mutton and lamb. The ſtock conſiſted of only as many ſheep as ſupplied the family with theſe articles, and about twenty-four horſes and cows.

"Finding the land in this condition, I could ſee no poſſibility of getting it into a proper tilth for graſs, or any other crops, but by clean ſummer fallows. I did not think it prudent to begin my operations by liming upon the ſurface, as the after ploughings and levelling muſt have buried a great part of it. I therefore plough firſt for oats, not expecting much of a crop; but this helps to rot the old ſurface, and mellow

mellow it for the ſummer ploughing; and, as I have ſometimes more land under oats than I can get properly fallowed and manured the next year, I am then obliged to take two crops of oats from ſome part of the land; after which I give it a complete ſummer's ploughing, four, five, and ſometimes ſix furrows, before I can get it perfectly fine and level; and after getting it clean of ſtones, and draining all the wet ſpots, I give it two hundred and forty buſhels of lime-ſhells, and about thirty double cart-loads of compoſt dung. I then plough it in by ridging up the land as ſtraight as poſſible, and draw furrows croſs the ridges where it is neceſſary for carrying off the water; theſe furrows are all cleaned out with a ſpade to keep the land dry during the winter. In the ſpring I ſow it with barley or bear, and with it graſs ſeeds, from which I take but one crop of hay, and then paſture it; and this is the courſe I intend to purſue, till I have taken in the whole farm. I have now a hundred and twenty-ſix acres well laid into graſs. My hay crops and paſture are both good; and, as it increaſes, I add to my ſtock of cattle,

cattle, which makes a conſiderable yearly increaſe of dung, and which enables me every year to take in a greater quantity of ground. I have this winter ſeventy-ſix head of horſes and black cattle upon corn and fodder. I have theſe two years paſt ſupplied the family with every neceſſary from the farm. I have every year ſold ſome grain; and have now both cattle and ſheep for the market.

" It may be a matter of ſurpriſe to you that I have not all this while thought of green crops for winter feeding of cattle: It is not, however, for want of thought. I know the value of thoſe crops too well to neglect them; but there are many things againſt the culture of them yet. This coarſe kind of ground takes ſo much time and labour, that the ſeaſon is always too far ſpent before I can get it properly dreſſed and manured. I have, however, this year above twenty acres of cole or rape; but being obliged to ſend to London for the ſeed, it was near a month too late; it is nevertheleſs a tolerable crop, and will afford a good deal of food for my cattle and ſheep in the month of March and April, when

when the land will be in perfect order for barley; and as rapeſeed may be ſown at leaſt one month later than turnip, and requires no other labour or expence than the ſeed, I ſhall make this a ſubſtitute for other green crops till a better courſe can be taken. My chief deſign at preſent is only to put the land into a proper condition for a more perfect ſyſtem of huſbandry; but ſeveral things are wanting before that can be completely carried on. I have not a proper farm-yard, nor a houſe or ſhed for feeding cattle, or for the conveniency of raiſing near ſo much dung as might be made; but theſe things will come in courſe. Lord Caſſillis has an extenſive and very commodious plan of offices, which he intends to build ſoon. His Lordſhip is now making ſome very ſpirited improvements here, both in building and planting, beſides incloſing many farms at a diſtance, which muſt in a few years make an agreeable alteration upon the face of the country.

"My crops, you may imagine, will not be great; but, as they are, I ſend you the mean product of three years, having

ving threſhed but one ſtack of the fourth, I can go no farther. They are as follows: Oats, ſeven buſhels on an acre; produce, thirty-two buſhels. Barley, two buſhels and a half; produce, ſomething more than forty. Bear, two buſhels and a half; produce, forty-four. Peaſe, three buſhels; produce, only twelve. Wheat, I ſowed eighteen buſhels upon ſix acres, part of fallow prepared for barley for crop 1776; the ſeaſon was ſo wet I could not get it ſown till the end of October, and the hard froſt that winter hurt it much; it was very thin upon the ground, and the product only twenty buſhels an acre. The ſmall quantity of peaſe I ſow upon land intended for fallow. I do the ſame with oats. This I do, becauſe it would otherwiſe interfere with my fallows, barley and graſs crops. I always harrow in a little lime with the ſeed.

"The meaſures of the above are by the Wincheſter buſhel and the Scotch acre, as is alſo the lime. My compound middings, which I lay on with lime, conſiſt of farm-yard dung, ſea-weed, and earth. I have no ſtated proportions of each, as the quantity

quantity of ſea-weed is uncertain, there being a greater quantity thrown out ſome years than others. I uſe all I can get, with which I mix up all my dung, and a good quantity of earth. I have tried the ſea-weed made into middings by itſelf, but it does not do ſo well as when mixed with dung and earth; for this imbibes all the juices which run off in great quantities when thrown into middings by itſelf; and when mixed with dung and earth, it ferments and rots much faſter, and makes a very rich manure.

"I have never made any trial of the weight of my hay crops; but I think I can ſafely ſay they have not been leſs than a hundred and fifty ſtone upon an acre; the greateſt part of the laſt year's crop, I am almoſt convinced, was near two hundred. The uſual quantity of ſeeds I ſow are eight pounds of red clover, ſix of white, four pounds of ribb-graſs, and one buſhel of ryegraſs. After the hay crop, I paſture it with horſes, black cattle, and ſheep. I think it an advantage to eat it pretty bare, as it grows thicker and ſweeter the next ſummer. I go regularly over the

the graſs fields every ſummer, to root out all the docks, thiſtles, &c. And this is all that I ſee neceſſary for the improvement of the paſture at preſent.

" As to the ſoil and climate being beſt adapted for graſs or grain, I do not think that the culture of either can be carried on to any degree of perfection ſeparately. The ſoil is, in general, very proper for turnip and artificial graſſes; conſequently grain and thoſe crops ought to be cultivated together. And I dare ſay you will allow, that any light land farm, under ſuch a culture, will produce conſiderably more cattle and grain yearly, than it can do of either of them ſeparately. The climate is indeed wet, but the ſoil in general agrees with it: And, as the autumn rains are always ſucceeded by high winds, the crops do not ſuffer more by it here than in many other places; and, except about the edges of the moor, the grain is always good.

" I wiſh I had found this farm in the condition I am endeavouring to put it, as I ſhould in that caſe have been able to have given you ſome account of a very different courſe of huſbandry, which might

perhaps have done me ſome credit, and have been more ſatisfactory to your inquiries. I am not ſure (as I have miſlaid your letter), if I have anſwered all your inquiries; if I have not, pleaſe to point out the particulars, and I ſhall do it in another letter."

From Maybole, all along to Ayr, the induſtrious hand of improved huſbandry is viſible. Much land is incloſed with ditch and hedge; the quicks, trained with care, make a conſiderable advance. But I cannot refrain from diſapproving of planting crab apple trees among the thorns. The practice is general here; but it will be regretted when out of time to correct the error. Thorns never can ſucceed in company with trees of a quicker growth; they cannot bear to be overtopped, and never grow ſtrong in that ſituation. Some miles before I reached Ayr, I found myſelf in a rich plain of wide extent, greatly improved by means of ſhell marl—on every ſide, and in every field, luxuriant crops of corn. Many farmers are conſpicuous for good huſbandry, where not many years ago there

there were few or none. John Hall in Achandrain, a tenant of Sir Adam Ferguſſon's, is one of thoſe. His culture is beyond ordinary. His ridges are made ſtraight, level, and neatly done up; all his crops excellent. Mr Binning of Machrimore is another. I mention theſe as a ſample out of many.

Ayr is a ſea-port town that makes ſome figure in trade. Lime is imported from Whitehaven, and lime-ſtone from Ireland, which, when burnt, coſts about 15 d. for four buſhels. *John Campbell* of *Welwood* takes the lead here, both in trade and huſbandry. He is a gentleman of ſpirit, of attention, and of enterpriſe. The coal-trade carried on by him, both for home ſale and for exportation, is very conſiderable, and circulates much money. He carries 1400 weight in a cart with a ſingle horſe, and three of theſe are managed by a ſingle man. This is a very great ſaving.

I ſurveyed Mr Campbell's farm of *Milcraig*, which well deſerves to be ſurveyed, conſidering what he has made of it from the poor ſtate it was in originally; the ſoil mean

mean and mooriſh, carrying ſhort heath and a few dwarf whins; and, over and above, the ground reduced to the moſt wretched ſtate that bad huſbandry could reduce it to. Mr Campbell, however, attempted this beggarly farm on a long leaſe. He begun with trying to force graſs by ſpreading lime on the ſurface. It lay for years without producing any; nor was the effect better when ploughed into the ground. Mr Campbell, thus diſappointed, examined the ſtate of the lime and of the ground; he found the lime caked and run together, and liker a paſte than a manure. The nature of lime, with reſpect to moiſture, is particular. Water diſſolves burnt lime into powder, in appearance perfectly dry; but, lay powdered lime in a heap acceſſible to water, and in time it becomes ſo hard as to require a pick-ax to ſeparate it. The lime here had been laid on a wet clay ſoil, which made it run together; and hence Mr Campbell juſtly concluded, that, to make the lime operate, it was neceſſary firſt to lay the ground perfectly dry, and then to mix the powdered lime intimately with it. He now ſummer-fallows two

years

years ſucceſſively, pulverizing the ground by ploughing, breaking, and harrowing. In this ſtate 800 Winchester buſhels of lime are ſpread on the acre, hot from the kiln, and ploughed in immediately. As ſoon as dry in the ſpring, the land gets another furrow, in order to make a ſtill more intimate mixture of the lime with the ſoil. Two ſucceſſive crops are taken, both good. He grudges not the expence of Blainſly oats for ſeed, though the diſtance is great; but the expence is repaid him in ſome meaſure, by ſelling the produce to his neighbours for ſeed. To another field he has applied ſoap-leys with ſucceſs: And, upon the whole, he has brought this farm into good order.

I proceeded to view the farm of *Mr Hamilton* of *Sundrum*, a gentleman early initiated in the art of huſbandry. He begun with incloſing, &c.; but, to avoid repetition, I confine myſelf to his lateſt improvements. He holds by the principle, that manure can only effectually operate when mixed with the ſoil. Lime therefore is only uſed with ſummer-fallow, mixed with

with the ſoil by reiterated ploughing and harrowing, 600 buſhels being given to an acre. He finds the advantage of this practice, in the produce both of corn and graſs, which is ſuperior to any of his former ones.

Much of his ſoil is a thin clay on a till bottom, whence the difficulty of keeping it dry. Mr Hamilton, after repeated experiments, adheres to ridges nine feet broad as the beſt for that purpoſe: He alledges, that broader ridges cannot be laid dry, without being thrice gathered, which impoveriſhes the furrows; that narrower ridges cannot be ſufficiently raiſed by one gathering, and that two gatherings raiſe them too high.

Mr Hamilton has converted a moſs of 31 acres into a fertile field. The hiſtory merits peculiar attention. The bottom is ſand, a happy circumſtance that ſuggeſted the plan of operation. A main drain was opened, cut down to the bed of ſand. Small drains were alſo cut down to the ſand, 18 inches wide at top, diminiſhing gradually to two inches at bottom, and communicate with the main drain. Theſe were

were in parallel lines, from twenty to forty feet aſunder, as the wetneſs of the moſs required. Bruſhwood was laid in ten inches high from the bottom, and covered with a ſod, the rough ſide undermoſt; the remainder of the ſpace to the top was filled with the moſs thrown out to make the drain. The moſs being thus laid dry, various ploughs were uſed, but none made proper work, except one of Mr Hamilton's contrivance, which was kept ſteady in that looſe ſoil by two wheels fixed to the end of the beam. Of all the manures tried, ſoap-leys anſwer the beſt; and now to the cropping, after the ground was brought into proper order. Oats was the firſt crop, and an immenſe one, no fewer than 80 buſhels Wincheſter meaſure from an acre. Next turnip ſeed ſowed broadcaſt, after dung. The turnip three times hoed. The crop was ſurpriſing, and the ſugar loaf turnip ſtood the winter the beſt. They were conſumed by cattle at the ſtall, which, with a little hay and ſtraw daily, produced a conſiderable profit. As ſoon as the turnip were exhauſted in ſpring, two ploughings were given, and the land

land made up into ridges nine feet broad, for a crop of bear and graſs ſeeds. The bear ſold on the foot for L. 8 every acre. The graſs ſeeds were two buſhels ryegraſs, 12 pounds white clover, and ſix pounds ribwort; but a natural tender graſs ruſhed up in ſuch abundance as to ſupplant every one of the ſown graſſes, the ribwort only excepted. The crops of hay were weighty; and ſo dry is the moſs at preſent, as to bear the heavieſt cattle while paſturing.

This gentleman ſpares no coſt in draining, which is peculiarly neceſſary in a wet country and clay ſoil. The lawn before his houſe, a clay ſoil, formerly wet, is made now perfectly dry by capital drains filled with ſtone, and ſide drains twenty feet aſunder, done up as deſcribed above. It is clothed now with a thick ſward of the beſt graſſes.

Great attention is paid to the plantations. No tree thrives there if planted ſo deep as the till bottom; the trees therefore are planted on the ſurface, and bulked up. Elm is the only tree that does not thrive.

thrive. Open drains in the planted ground have a good effect.

This county is happy in its clergy, who are leaders of the people in temporal, as well as ſpiritual concerns. Many of them are ſkilful in the improvement of land; and, as they have a more immediate commerce with the country people than gentlemen of eſtates have, they are in the beſt ſituation for inſtructing the tenants in their art. I have occaſionally mentioned ſome of them; and it now falls in my way to mention the Reverend Mr Steel of Gadgirth, who poſſeſſes the character of being eminent as a gentleman, a clergyman, and an improver. I have not in all my ſurveys ſeen better culture, nor a finer appearance of corn, clover, paſture, hay, turnip, potatoes, both in drills four feet intervals, nicely dreſſed. I was charmed to ſee every branch of his huſbandry in perfect order. I recommend this practice of huſbandry to thoſe in the country who wiſh to imitate the beſt example. Plantations of trees and the hedges thrive exceedingly, and the houſe and offices may be called elegant, and are very commodious. I

avoid mentioning particulars; for his own ſtate will be more accurate and inſtructing than any I could give, which he moſt obligingly promiſed to give to me in writing, and I give it to the public in his own words, as a valuable piece of intelligence.

Minutes of MR STEELE'S *improvements.*

Gadgirth, Dec. 11. 1777.

"I have not been an extenſive farmer, but have taken ſome pains with a large tract of very poor land, whereof I became proprietor in the year 1740. It was quite covered with furze and ſhort heath upon a hard tilly bottom, but eaſily reduced by froſt, ſummer heat, and repeated ploughings. After having incloſed and divided it with ditch and hedge, in a manner afterwards deſcribed, and in ſuch a direction as might beſt carry off the water that could not paſs through the hard bottom, I next hoed out the furze, gathered them in heaps upon the ground, then ploughed up with eight oxen; croſs ploughed it, and, with a heavy triangular brake, tore the lumps to pieces, until nothing but the coarſe

coarſe vegetable part remained, which I alſo added to the heaps of furze, roots turned up by the plough. Theſe I burnt in the firſt dry weather in the ſpring; and having twice ploughed the ridges to about ſix feet broad, I ſowed oats in the end of March, and ſcattered the aſhes I had from the burnt heaps, harrowing them in with the grain. I had upwards of ſeven quarters * upon the acre, and upon grinding them had 21 pecks of meal from the quarter.

"I ploughed down the ſtubble after harveſt, gave it a ſmall quantity of dung in the beginning of March after two ploughings, and ſowed it with peaſe, covering them with a light furrow, from which I had two quarters and a half *per* acre, with a good deal of ſtraw. I ploughed down the ſtubble which was left very rough; next ſpring I ploughed it twice, going deeper at every ploughing, and raiſed ſome of the till bottom which was reduced by the ſeaſons, and helped to deepen the ſoil when incorporated with it.

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* The Engliſh quarter is meant here.

I ſowed it again with peaſe, without additional manure, and had a better crop than the former.

"Having got a good quantity of dung from the peaſe ſtraw, wherewith I fed my oxen to good advantage, I ſowed bear and had a very good crop; but did not lay it down, as I foreſaw that the ſeeds of furze and heath would vegetate again, unleſs they were, by frequent ploughings, made to ſpring, in order to their deſtruction, by after ploughings, which I effected by alternate crops of peaſe and bear, adding a ſmall quantity of dung to the bear crop, and ploughing three or four times to each crop. I found that the additional ploughings, beyond what are uſually given to crops of bear, were equal, at leaſt, to the half of the dung that is commonly applied for raiſing bear crops. By this courſe of management, having made the ſoil quite mellow, and killed the ſeeds ſhed upon it in its natural ſtate, I laid it down, after many ploughings, with dung, bear, and graſs ſeeds; I had an excellent crop of bear, and the two ſucceeding hay crops were

were remarkably good*. This was my method with many wild fields in the ſtate above mentioned, which in ſucceſſion were uſed in the ſame way.

" As to the grounds which have been ſcratched and ſcourged by the tenants before I came to the poſſeſſion of it, they were ſuch poor, hungry objects, and ſo curſed for the ſake of their former perſecutors, as made me deſpair of ever rouzing them into a ſtate of vigour and fertility; for even reſting did them little or no good. The means of enriching them was not eaſily had, lime being very diſtant and expenſive.

" Ploughing was the chief meaſure I had recourſe to; and having given it a ſmall quantity of dung, after ſeveral ploughings, I ſowed it with peaſe, and had a tolerable crop. I turned down the ſtubble before winter, and gave it one furrow in the ſpring, which brought it to a proper ſtate

* I am not clear that the ſeed of whins can be totally deſtroyed by ploughing, even in the courſe of any given number of years, as my own experience teaches me, that whins reſume their place after 20 years tillage, and cropping with corn.

ſtate for planting potatoes, which I did at four feet diſtance between the rows, horſe-hoed the interſtices, and hand-hoed about the plants. I did not give them above a third part of the dung that is uſually applied for wheat or barley. The ground is hereby thoroughly fallowed, and the crop has always amounted to above 40 bolls upon the Scots acre; which being ſold even at the low price of ſixpence *per* peck, weighing equal to four pecks of meal, makes a good return, eſpecially as the weeds are deſtroyed, the ſoil pulveriſed, and made fit for carrying a good crop of wheat with one furrow, without any manure. The potatoes are taken off in the end of September, and the wheat ſown immediately. If the land is laid up in ridges through the winter, barley may be ſown in the ſpring without further manure.

"I follow the ſame plan with turnip, and ſow barley or bear in the ſpring, the turnip being eat off by the middle of March, having given the ground two furrows.

"The method I follow as to kail is much the ſame. As early as the ſtate of the ground will permit, I lay it up in ridges before winter. I ſow white peaſe of all

all kinds in ſeparate drills, and beans of all kinds in other drills, keeping the kinds ſeparated. This being done with dung in the drills, about the middle of February I plough the inter-ſpaces ſeveral times, as the crops require, until the end of June. I then plant cabbage and kail of all kinds on the ſides of the drills, which do no hurt to the crops, and are not hurt by them; and when the peaſe and beans are taken off, the kail have full room to ſpread, and their roots to penetrate into the dung in the drills. I have by this method as good crops of each of theſe as if they were all in ſeparate rows. The kail, though four feet diſtant in the rows, came to meet in the beginning of October, and came to a very great ſize. They are not hurt by the ſevereſt froſt, except perhaps ſome of the cabbages; the ground is quite covered with them; and when the garden crops of greens laſt year were all deſtroyed by froſt, I did not loſe one plant.

"Having lime-ſtone to bring from Ayr in the ſpring, I ſent a great parcel of kail to be ſold in the ſtreet, and had about L. 3 Sterling for an acre, beſide a great deal

deal I applied to my own uſe. I feed my milk cows with them in froſt, when the turnip cannot be raiſed.

" After two ploughings in April, I ſow barley or bear with very good ſucceſs. I have tried the red Jamaica yam in the ſame way, and have upward of a hundred of increaſe. They are not reckoned ſo good for eating as the potatoe, but are equally good for cattle of all kinds, and they are all fond of them. I had many of them this ſeaſon weighing three pounds of 24 ounces each. They grow ſo ſtrong and thick in the ſtalks, and took ſo much earth to ſupport them, as to make it needful to put them at ſix feet diſtance in the rows, and two feet in the drill, for the future.

" As to the method of managing ground already improved, I have little to add to what has been written by very good hands, and generally known, however little practiſed. In applying lime, I find that a ſmall quantity ſcattered equally on the ploughed ſurface, and harrowed in with the grain with the laſt bout, has a much better effect than a great quantity applied in any other way.

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"As to the management of graſs-fields after they are laid down, I in that, as in every thing elſe, lay aſide ſyſtems, as they fetter invention, and ſtop the progreſs of improvement, which reaſon, attention, and ſteadineſs only can promote.

"As I have a great deal of coal culm or ſmall coal left above ground from coal-pits I have in that field, I burn it in heaps, ſtill adding more as the fire breaks out, until I have a great quantity of aſhes that have been burning for ſeveral months. In place of dung, I lay theſe in the drills for turnip, putting ſome of the mellow earth above them before I ſow the ſeed. And here I have the largeſt and beſt turnips I ever ſaw. Theſe aſhes, mixed with pigeon dung, bring extremely good onions, garlick, ſhallot, &c.

Of Incloſing and Planting.

"My incloſures are moſt of them made with a ditch about five feet wide. I plant always two rows of thorn, the top of the thorn below thereby filling up the interval betwixt the ſtems of the two thorns

above, and thickens the hedge. I put a crab at 20 feet diſtance in the hedge-row, which I inoculated with apples, from which I have the pleaſure of bloſſom, without much fruit. About a foot above the thorns I put in ſlips of different roſes, which do no hurt to the hedge, and are a very cheap ornament, eſpecially on the ſides of roads. As I gave every dike a back drain of about a foot wide, I laid the turf or ſurface taken out of it on the ſide, to keep up the earth that compoſed the dike. About a foot and a half from it, I planted a row of well grown trees, particularly beech, oak, elm, ſweet cheſnut, which I raiſed with great balls of their own earth. This not only ſecured their ſteadineſs, but alſo their quick growth, as they had a double ſurface to feed upon. This method I ſtill continue, as trees carefully planted in this way never fail, and make an amazing progreſs, whereof I have thouſands of valid and thriving witneſſes. I raiſe and nurſe all my trees, and put them at ſuch diſtances in the nurſery as to be able to raiſe them with ſuch a quantity of their own

own earth as not to hurt their fibres in the raiſing.

"Moſt of the diviſions I have made are done with ſtripes of planting. Such as extend to the length of an Engliſh mile, I have made 150 feet broad between hedge and hedge, planting 50 feet on each ſide, and leaving 50 feet of a walk in the middle. The front lines next the walk are planted with beech and lime, and filled up behind, at an equal diſtance between the front trees, with laburnum, wild ſervice, wild cornel, &c. I plant the principal trees within the ſtripes at about twenty feet diſtance, and fill up the intervals with all kind of firs, leaving room to the pinaſter to grow in its natural luxuriancy, as its leaf keeps a perpetual verdure.

"When I firſt began to plant, I put in a good deal of birch, but have given that up, except a few of the weeping ones, as the ſeed of them ſpreads, and infects the neighbouring grounds; and never came to any account, compared with the firs, which, in 25 years from their being planted, I cut away from oppreſſing better trees, and ſold from one ſhilling to four ſhillings

per

per tree, at the rate of L. 50 *per* year from ten acre, and ſo on through ſixty acres in rotation. The next clearing muſt yield much more, as the good trees muſt be more relieved. The birch, planted the ſame year, came to ſmall account. I could not draw more than from a penny to a ſhilling for each tree. They give but little ſhelter, though they afford a variety when thinly ſcattered among other trees.

" Others of my diviſion ſtripes I make narrow or wide according to their length; and proportion the ſize of my plantations on the higheſt grounds ſuitable to the extent of their ſummits, and follow the circular or oval figure of them with the fence which bounds the plantation; making opens from the centre or not, according to the beauty of the objects that can be ſeen from them.

" I give the ground ſeveral ploughings before planting; which I always do very near the ſurface, having ſuffered much in my early practice by putting my trees into pits, reaching the clay or till bottom, where they ſtood in a baſon of water thro' winter, and were thrown out of the ground

or

or chilled by the froſt. By following the other method, I have plantations more advanced in fifteen years than by that in thirty.

"I have heard many gentlemen complaining that ſo much beech is planted, and regretting that oak had not been put in its place, as its bark is of ſuch value, and its timber better. This will appear not to be well founded, if they conſider, that beech is commonly, and indeed properly, placed in front lines of walks or opens, and bear dreſſing to a regular form: The oak will not bear this, and is more irregular in its growth, obſtructing the ſight of any object that is meant to be ſeen in the termination of a walk or opening. The beech will grow where oak will not, and that even upon the pooreſt ſand or gravel, and will there advance more in ten years than the oak in forty, to my certain experience. Beſides, it is uſeful for purpoſes which the other will not anſwer; and it is found upon trial, that no timber, even plain, acer majus, or ſycamore, or elm, makes better pumps of all kinds than beech. The beauty of its bark, leaves, and ſhape

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of its head, ſay much in its favour. The ſorbis ſilveſtris, wild ſervice, mountain aſh, or roan tree, I have planted in great numbers behind the front trees in the openings of plantations. Their bark is of equal value with that of the oak: Its flower and fruit recommend its beauty, and the thruſh and blackbird are fond of its berrys. I plant it alternately with the bird-cherry and laburnum, whoſe flower is beautiful, and its wood not inferior to mahogany, both in colour and durability.

" Of all the trees I have planted, the larix is the quickeſt grower. I have many of them, at thirty years of age, eighteen inches diameter: Time has not yet tried the duration of the timber; but, for the compactneſs of its wood, its red colour and ſtrength, it excells the fir, which, beſides its beauty, ſhould recommend it to be planted in ſheltered places for its uſefulneſs. The Virginian, or Occidental platanus, is another very quick grower, and though late in putting out its leaves in the ſpring, is the laſt tree that quits with them, and has this peculiarity, that the leaves are never eat by vermine. The oriental platanus

tanus is a very ſlow grower, and much inferior to the other in this climate.

" I ſhall only add to what I have ſaid, a few obſervations as to my management of a piece of natural wood very near my houſe. It was chiefly occupied with bramble, black thorn, and ſtumps of old decayed trees, which left no poſſibility of paſturing cattle in it. I bargained for the trenching of twelve acres of it at L. 4 *per* acre, leaving the good trees at proper diſtances. After having burnt all the rubbiſh in the ſpring, I ſcattered the aſhes, and ſowed it with Poliſh oats, from which I had nine quarters *per* acre. Next year I ploughed it where the growing trees would permit, pointed about the roots of them, and ſowed with oats again with graſs ſeeds, and had a moſt luxuriant crop. The twigs of the howed trees and traſhy graſs being hereby killed, I had the following two ſeaſons extremely good hay, and ſince very good paſture. The remaining trees are in a more thriving ſtate than formerly, and the field is very beautiful. It may be of uſe to obſerve, that the black thorn, after

ter being trenched out, never ſprings again. Though broom and furze frequently do, if they are pulled up by the hand while young, and the ground looſe, they may be totally baniſhed. The bramble, by conſtant cutting, will in time be killed, which it will be difficult to do by any other means, as its roots go too deep to be traced in light ſoil. By repeated pulling off the leaves of any vegetables, their growth will ſoon ceaſe, as they feed by the leaves as much as by the roots. By many experiments, and ſtrict attention for many years, to the nature and progreſs of the different kinds of trees that are ſuited to our climate, I might ſwell my obſervations to a great bulk, and add many to what have been hitherto wrote on that ſubject. But having little time for ſpeculation, I muſt proceed to practice, and do with all my might what my hand finds to do, as I am coming down while my trees are coming up."

Before *Mr Oſwald's* purchaſe of *Achincroove*, many incloſures were made with hedge

hedge and ditch, but the improvement of the ſoil was reſerved for him. The fields near his houſe are tolerably well dreſſed, the different crops good, wheat excepted; potatoes in drills well done up, and the paſture fields in good order. I am ſorry only to obſerve, that this gentleman has more farms in his own hand than can be well managed, unleſs he were to make farming his only buſineſs, and give up his time entirely to it. I cannot indeed ſay that I ſaw any improvement going on ſo ſubſtantial as to bear much additional rent.

His cows and young ſtock are in good order, and ſome of them well choſen, which, with a good bull, will mend the breed in this part of the country.

In paſſing along to Barſkimming, I took notice of a mode of fencing new to me. It was a mixture of elm and white thorn. It had been lately plaſhed; and the ſhoots from the elm were ſo much more vigorous than from the thorn, as to make it certain that the thorns will be overtopped, oppreſſed, and deſtroyed. There is no way I can think of to prevent this miſchief but to apply the knife, for preventing the

elm from overgrowing the thorn; nor am I certain that this will perfectly anſwer. Thorns do always beſt, free of any foreign mixture. Upon higher ground, bare both of graſs and corn, I obſerved incloſing going on with thorns and crabs in the ſame row, which will never thrive. It vexed me that induſtry ſhould be ſo improperly applied.

Barſkimming, ſituated on the Water of Ayr, is celebrated for its natural beauties, a fine river winding along in various directions, prominent rocks, deep ſhelving banks covered with natural and planted trees growing vigorouſly, and here and there a verdant plain highly cultivated and improved. To theſe Lord Juſtice Clerk, the proprietor, has added many artificial beauties and ornaments. The bridge over the river near his houſe is a grand work. The arch is a ſegment of a circle, 90 feet 3 inches diameter, and 90 feet high from the ſurface of the water to the top of the baluſtrades. His Lordſhip has enriched the landſcape with various plantations, ſtored with trees both uſeful and ornamental.

He

He has incloſed and planted all the banks on both ſides of the river, extending ſix miles on the ſouth, and three miles on the north ſide. Theſe lofty banks, covered with wood, afford a noble ſhelter, and variety of figure, highly entertaining to thoſe who for pleaſure traverſe along the excellent roads made for communication along the ſummits of the rocks, and by eaſieſt deſcents into the plains, where the river, and impending rocks, all combine to form a grand object of entertainment to the eye. And Lockerhill, a ſingularity in nature, is a very remarkable part of this ſcenery.

There is, beſides, a capital work contrived for ſhelter, but which, at the ſame time, is highly beautiful. It is a belt of trees carried two full miles on the higheſt part of the ground, at a conſiderable diſtance from the river. It is 200 feet broad. Fifty feet are planted on each ſide, which leaves 100 feet in the middle, and is cut yearly for hay. But its chief purpoſe is to be a road of communication round the whole, and an entry to many incloſures. It communicates alſo with a large planta-

tion

tion juſt making; and it has a further uſe, and a capital one, which is to occaſion a free circulation of freſh air over the whole plantation. How great muſt the value be of theſe plantations a century hence! a more ſecure fund laid up for heirs, than a large ſum of money lent on intereſt.

Upon one ſide of the houſe the ſoil is clay, upon the other it is dry light land, with heath in plenty upon it. To produce fine graſs was his Lordſhip's view in applying to huſbandry, wherein he combined the profitable and ornamental. The firſt thing was to ſpread lime on the ſurface, 140 bolls to the acre of the clay land, 100 bolls to the acre of the light. Note, That this boll makes five Wincheſter buſhels. After lying two years on the ſurface, the ground was broken up for two ſucceſſive crops of oats. Then turnip on the light land; after fallow with dung; and, laſtly, barley with graſs ſeeds. The field now under fallow is well managed, and lime upon it ready to be ploughed in, and forming the ridges, either for wheat this year, or barley next year with graſs ſeeds. I muſt not diſguiſe my opinion,

that

that this way of managing lime, which has been much practiſed by theoretical farmers, is the reſult of an exploded opinion, that lime draws nitre from the air. But the experience of the moſt expert farmers has aſcertained a much better way of managing lime, which is to apply it hot after being well pulveriſed by ſlaking; and the more pulveriſed the ſoil be, ſo much the better.

Here is a glorious fund for improvement, a lime-ſtone rock and coal within two miles of it. His Lordſhip has erected a draw-kiln for burning it; and his tenants are made welcome both to the rock and kiln to burn as much as they pleaſe. This is a very proper encouragement to indolent tenants who ſtand in need of a ſpur. But his Lordſhip is too wiſe not to have the conſequences in view. Lime is a two-edged weapon, and can be uſed as ſucceſsfully to impoveriſh land as to improve it. The large crops it produces at firſt prove a violent temptation with low people, who mind only preſent gain, to continue liming and cropping till they run out the ground, no leſs to their own hurt when

when bound by leaſe, than to that of the landlord. It is neceſſary to put ſuch men under reſtrictions againſt over-liming and over-cropping.

His Lordſhip's huſbandry operations have been directed by Mr Hans from Northumberland, a ſkilful operator; and his diligence and ſucceſs have been rewardedby a farm for himſelf, which is a valuable acquiſition for his Lordſhip by ſecuring to him a good tenant, who will improve his land inſtead of waſting it; and will alſo be a good example to the reſt of the tenants.

David M'Lure of *Shawood* is ſingular in his mode of agriculture. He depends much on mixing lime and earth in a compoſt, turned over and over at leaſt three times, in which ſtate it remains one full year; if longer, the better. This compoſt is gradually put in the dunghill, and each ſtratum of dung carried from the ſtable is covered with a ſtratum of it, till the whole be finiſhed. From 100 to 120 loads of a ſmall cart is given to the acre; and the ſervants, in filling the cart, muſt be attentive

tive to mix the dung and compoſt well together. This is a work of much labour. Might not the compoſt and dung be as well carried to the land ſeparately, and mixed there in ſpreading? I think better; for the mixing the dung with the compoſt is undoubtedly a hindrance to putrefaction. And I further think, that lime ought never to be mixed with dung in a dunghill, becauſe there is no remedy more effectual than lime to prevent putrefaction. Every ſoldier knows that, after the loſs of many lives in a battle, powdered lime is thrown upon the dead bodies to prevent the unwholeſome ſtench when bodies begin to corrupt.

Another ſingularity is the ſowing peaſe as the firſt crop on fallow, which hitherto has not anſwered, though both lime and dung were given. I am not ſurpriſed that peaſe thrive not in ground rendered looſe by frequent ploughing. This effect is increaſed by lime and dung. Beans, I imagine, might have anſwered, if laid deep, by ſowing them under furrow.

I ſaw another inſtance of Mr Campbell of Wellwood's knowledge in huſbandry, in

in the farm of Adam Hill, his property. I met him again in this place, and got from himself his method of improving this farm. He begun with incloſing moſt ſubſtantially by hedge and ditch. The ditch is large, and what is taken out of it forms a ſtout bank behind the quicks, which are properly planted in the choice of the ſoil, a little back from the edge of the ditch. The ſoil in many parts is ſtrong, in other parts lighter, where whins grow; but moſtly on a till bottom, that holds water, and therefore unfit for turnip, cabbage, or kail. This land was moſtly limed ſeveral years ago. Mr Campbell does not ſcruple to lime a ſecond time. After a thorough ſummer fallow with both lime and dung, he takes wheat, then barley and graſs ſeeds. Where paſture only is intended, the graſs ſeeds 3 buſhels ryegraſs and 12 pounds white clover; but is of opinion, that 20 pounds will anſwer better. This ſurely is light cropping. Another method of cropping is to take oats and peaſe alternately twice or thrice, giving lime or dung to the peaſe. He finiſhes with a fallow to prepare for graſs ſeeds.

For

For potatoes in the lazy bed way, tops of whin are uſed inſtead of dung, and the crop is good.

Sometimes clover and ryegraſs are ſowed upon wheat in May, and rolled. The wheat is laid flat on the ground, but ſoon riſes, and is not the worſe.

For increaſing the dunghill, every particle of hay and ſtraw is conſumed in the farm; and the court of offices is commodious for winterers.

The calves are not allowed to ſuck. Each calf is allowed daily four pints of ſweet milk, and is fed ſo the firſt three months.

He ſays that ſea ſhells reduced to powder have an immediate effect. Large ſhells entire are ſlow in operating, as they fall to powder by very ſlow degrees. Shells of oyſters, of wilks, of muſcles, and of cockels, are ſoon reduced; but there is a ſmall round ſhell ſo hard as ſcarcely ever to be reduced.

Greater variety in the practice of agriculture I have not met with than at Newfield; wheat, beans broadcaſt and in drills, bear, oats, potatoes, turnip, cabbages. It is

difficult to ſay which of theſe do beſt, they are all ſo good, and the culture ſo well adapted to the different kinds. Of the different ſorts of kail, the curled ſtands the winter beſt. Mr Campbell, the proprietor, has ſtudied farming, and converſed with many eminent improvers. To follow him accurately through ſuch diverſity of operation, would indeed be inſtructive; but, to make way for others, I muſt confine myſelf to a general view.

The ſoil in general is clay, ſome ſtrong, ſome leſs ſo. Every field has a ſlope; and the ridges are formed in that direction, ſo as to leave little moiſture that can do harm. He begins with breaking up the ſtrong land from ley; and two crops of oats are taken in ſucceſſion, not in hopes of a good return, but in order to rot the ſward. A thorough ſummer fallow ſucceeds, in order to reduce the ſurface, and to level the ridges. If this be not ſufficiently done in one year, a ſecond year's fallow is not grudged. The ſurface being thus ſufficiently pulveriſed, lime is ſpread at the rate of 1000 buſhels *per* acre, and carefully mixed with the ſoil by much harrowing.

ing. The ridges are then formed twelve feet broad, which is done by a ſingle gathering. Dung is then alſo given, and turned in with a deeper furrow, which brings up the lime again to the ſurface. Wheat, bear, vetches, and oats, have been taken in ſucceſſion; but Mr Campbell prefers the following rotation; wheat, beans in drills three feet aſunder, or broadcaſt where the ground is perfectly clean. As ſoon as the beans are removed, a ploughing enſues, to prepare again for wheat. If that crop be prevented by a fall of rain, bear is ſown next ſeaſon. In every caſe, graſs ſeeds go along. As paſture is chiefly intended after wheat, the ſeeds are twelve pounds white clover, and four buſhels natural hay-ſeed. Where bear is the crop, 18 pounds red clover is ſowed on an acre, which is cut for green food, or made into hay; and, after twice ploughing, wheat is ſowed, which finiſhes the rotation, or a crop of oats, if the wheat be prevented by rain. If I might preſume to find fault with the practice of this accompliſhed improver, it would be to obſerve, that four buſhels of beans broadcaſt, and three in drills,

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is too little ſeed, and that ſix buſhels would anſwer much better. I took the liberty to ſuggeſt to Mr Campbell, that his crop, though a good one, was too thin. Beans ſuffer much where the plants are not ſo cloſe as to ſhelter and ſupport one another. Where they grow thin, wind makes a great impreſſion. Neither do I approve of two ploughings after clover for wheat, excepting only in a ſtiff clay ſoil.

After a drilled crop of turnip, barley with graſs ſeeds follow. Where the land is intended for paſture, white clover and hay ſeed are ſowed as above. Where hay or green food is intended, red clover is ſowed. Wheat comes next, and oats finiſh the rotation.

Heavy land is ploughed with three horſes in a line, and land more mellow with two, alſo in a line, to prevent poaching. This makes a driver neceſſary; but Mr Campbell thinks that he gains by the addition of a driver, ſuppoſing him alert enough to quicken the pace of the horſes. Every operation depending on activity of ſervants, will be expeditious in proportion to the activity of the maſter. This gentle-

man

man makes it a rule to be at the head of every thing himſelf.

He has tried trenching with the ſpade ſucceſsfully. A field of water-fat land was every year flooded. It retained moiſture, and was long of drying. It was trenched two ſpade deep, and in trenching, drains were made at the diſtance of every twelve yards, and filled with faggots, which effectually drained the whole. The firſt crop was oats, which grew ſo vigorouſly as never to ripen. The ſecond crop, bear and graſs-ſeeds, has a promiſing appearance. A wet meadow was laid dry by open drains. Slaked lime ſpread on the ſurface improved the quality of the graſs, and produced ſo much white clover as to make the paſture very rich.

This country is obliged to Mr Campbell in many reſpects, particularly for raiſing ſo much wheat, which is here far from being common. He finds great advantage from the bran, by giving it to his horſes, two feeds a day, along with green clover, which enables them to go through more work.

Cully's lambs and ewes he has in perfection. He acknowledges that they will yield

yield no profit unleſs on rich paſture. Their wool, which is fit for combing, has increaſed in length ſince he got them, which ſhows the richneſs of his paſture. One fleece weighs ſeven pounds Scotch weight, and gives 15 ſhillings the ſtone, being 24 pounds Engliſh. The price is the higher becauſe he never ſmears. The wool of ſix wedders, three years old, ſold for 50 ſhillings, and the four quarters of each weighed in the ſhambles 120 pounds Engliſh. Mr Campbell told me of a ewe hog belonging to Mr William Anderſon tenant at Craig, that carried 21 pounds wool, Engliſh weight; an amazing quantity.

The Lancaſter cows at this place are wearing out of requeſt, from their giving little milk. Mr Campbell entertains high notions of Highland cows, as they give excellent milk, and I am of the ſame opinion. He attempted to improve the Lancaſter kind as to their milk, by a croſs with the Highland kind. The breed are handſome, and thrive exceedingly; but give very little milk.

Rents in this country are high. I was told of a farm of 140 acres, whereof 20 not

not arable, let at 27 s. 6 d. *per* acre, and another at 25 s. This is a proof not only of a rich ſoil, but that this country is not deſtitute of enterpriſing tenants.

Matthew Hay tenant in *Holms*, belonging to Mr Dalrymple of Nunraw, pays 20 s. for each of 120 acres, all arable. The ſoil is light, and kindly to turnip and clover. This tenant's mode of culture exceeds any I have ſeen in Ayrſhire, performed by one who is merely a tenant. His fallow field of 27 acres is clean and in good order. Six hundred and fifty buſhels of lime *per* acre were ſpread on the flat ſurface, after which it was ploughed, and ſtraight ridges formed ten feet broad. When I ſurveyed this fallow after it was ridged, Mr Hay was buſy in leading dung to it; and, in order that all his ſervants might be fully occupied, ten carts were employed, each drawn by a ſingle horſe, and drove by women, who are dexterous at that employment. This field was intended for wheat; and, in a wet country like Ayrſhire, expedition is of great importance. After finiſhing this laborious work

work of dunging, nothing remained but to plough it into the ground, and to water-furrow, to be ready for the crop when proper to be ſown. I heartily recommend this practice to every farmer in a wet country. Let not the forming ridges be delayed a moment after the ground is fit for it. The dung may be laid on at leiſure, and it anſwers as well on ridges as before. Beans and peaſe mixed and in broadcaſt, are intended for next crop, and then barley with graſs-ſeeds. Where ſhall we find a plan of cropping more beneficial both for landlord and tenant?

One field of 12 acres drew my attention, the crop of bear on it was remarkably good. The hiſtory follows. The firſt operation for improving this field was a thorough fallow of ſeven ploughings, limed and dunged in the manner above mentioned. Seven buſhels of oats, Wincheſter meaſure, were ſown on the acre, and ſold on the foot, each acre for ſeven pounds five ſhillings. The ſecond crop was oats, after a ſingle ploughing. And, for the credit of Joſeph White the ploughman, I am glad to mention that it was finiſhed in eleven

days

days with two horſes only in the plough, without a driver. Each acre produced 80 buſhels, and ſold for L. 9 : 10 : 0. Third crop bear, thrice ploughed and dung; ſeed 44 buſhels upon the whole field. Each acre produced 80 buſhels, and ſold at market for L. 11. Fourth crop oats, about equal to the former. Fifth turnip with dung, ſowed broadcaſt; four ploughings, and as many harrowings; hand-hoed twice, and ſome parts oftener. The turnip very good, and conſumed on the field by ſheep hurdled. The ſheep were Highland old wedders, which coſt 15 ſhillings the head in November, and were ſold in March for 24 ſhillings, which returned about ſix pounds Sterling for each acre. The next crop bear, that which I ſaw on the ground. Peaſe thrive well in this farm, and are frequently introduced in the courſe of cropping. As the ſoil anſwers well for graſs, Mr Hay ſometimes paſtures a field five or ſix years, to make it the more fit for corn.

Upon a very light harley ſoil, that bears but a mean ſort of graſs, and is filled with broom, when it lies any time, Mr Hay

takes alternate crops of turnip and bear, which have anſwered well. Another field, a little better as to the ſoil, carries turnip, bear, and clover in rotation. Dung is given to both fields when in turnip.

His chain-plough is good; but, as there is no perfection in man, I regret the ſmall carts he uſes, which will not hold a load ſufficient for half a horſe. A good ſtout horſe will draw much more than double of what his carts contain.

Mr Cully's ſheep have found their way to this farm; and, as Mr Hay reforms in every article, theſe ſheep are in high repute; in evidence of which, he got 30 ſhillings for lambs intended for a breed. Laſt June he refuſed 25 ſhillings for year olds offered by butchers for the market. The fleece weighed 8 pounds Engliſh, and ſold at 15 ſhillings *per* ſtone. No attempt hitherto of a croſs breed has been made. A ſecond or third blood from Cully's kind, with the beſt of this country, would improve the breed greatly. As the general run of cows and ſteers is here but indifferent, Mr Hay is attempting an improve-

ment

ment by a mixture with the Holderneſs kind.

I finiſh with a neat houſe and offices. The landlord contributed L. 160 : 10 : 0. Mr Hay added L. 400 on a leaſe no longer than 30 years.

Major Dunlop of *Collan* has got his fields into good graſs, and what was formerly outfield is now in good order. Lime is his chief manure, which he always lays on the ſward to lie at leaſt a year before breaking up. I forbear going into particulars, which differ little from what have been deſcribed frequently above. I ſhall only mention one article that is new, which is manuring his land with horn ſhavings, procured from Ireland at the rate of 13 pence *per* barrel, 80 to 100 on an acre. This is a conſiderable expence, at leaſt L. 4 : 6 : 8 to the acre. But the Major perſeveres, and finds his account in it. He has a curious obſervation, that animals fed with peaſe or bean ſtraw afford richer dung than even with hay. If this hold, it affords an additional motive for frequent crops of beans and peaſe.

Wool

Wool has engaged the Major's attention ſeveral years. He got a breed of ſheep from England with long wool, which, upon his dry kindly paſture, improved in quality, and is now ſold at 24 ſhillings *per* ſtone, 24 pounds Engliſh. The Kilmarnock manufacturers are fond of it. The Major has got a full blooded ram of Bakewell's kind, not ſo fine in the wool as his own. I wiſh he does not impair his own wool by the croſs breed.

Labourers and ſervants are not ſcarce, though many are drawn from huſbandry to the town of Kilmarnock for manufactures. The wages of a hind are five pounds Sterling *per* year, a houſe and a yard, ſix and a half bolls oat meal, and a cow maintained. The wages of a day-labourer from tenpence to a ſhilling, which is higher than in many other parts of Scotland.

Huſbandry and manufactures are ſiſter arts, that ſhould go hand in hand, and ought never to ſeparate. They are not, however, altogether free of rivalſhip more than real ſiſters are. A manufacture, the younger ſiſter, draws indeed, in its progreſs, hands from huſbandry the eldeſt;

deſt; but then it may be doubted whether the younger ſiſter, after it becomes ſtationary, does not pay its debt by returning hands to the other. Whether Kilmarnock has arrived that length, is a proper ſubject of inquiry.

The woollen manufactures, carried on to a conſiderable height in this town, create a conſtant demand for wool, which cannot be ſupplied but from a diſtance. Can the gentlemen in that neighbourhood undertake any thing more patriotic than to improve the breed of their ſheep, which at the ſame time is the beſt plan for raiſing their rents? Only let them keep their ſheep at a diſtance from hedges, unleſs they procure the heavy Lincolnſhire breed, which are uſed to incloſures, and eaſily kept in. Upon rich graſs, which that country will plentifully produce by good culture, I doubt not but that ſuch ſheep will thrive well. Mr Clerk of Holme has incloſed with hedge and ditch; and his thorns, by careful training, make a good appearance. I obſerved a flock of fine ſheep, a mixture of Cully and Bakewell with the natives. The ſpirit for this ſpecies of improvement

provement I hope will ſpread ſo as fully to ſupply the Kilmarnock market, equally for their own benefit and that of the town. But the activity and ſpirit for trade of this people is not confined to the manufacture of wool into various articles, and that to a very great extent; but ſeveral other branches of home manufacture they carry on extenſively; and, in the article of ſhoes made of Scotch tanned leather, I am credibly informed of one houſe in Kilmarnock exporting not leſs than L. 12,000 Sterling worth in each of the two laſt years; and it is now a melancholy truth, that the trade is loſt ſince parliament granted to Ireland liberty of exporting ſhoes, as they pay no exciſe or duty on leather.

The eſtate of *Grougar*, the property of Mr *Colebrook*, is of a rich ſoil. Seventeen hundred and thirty-three acres arable are let for L. 1300 Sterling, above 15 ſhillings *per* acre.

In paſſing by *Galſton*, I obſerved the induſtry of the women. They build the hay into tramp ricks: They load the cart from

from the rick, and drive it to the ſtack, and, as mentioned above, they aſſiſt in driving dung to the land. But here men ſervants are not plenty.

The incloſures of Mr *Fullarton* of *Roſemount* with ditch and hedge engaged my attention, being done in a better manner than moſt in that country; a large ditch opened, the thorns properly planted back from the edge of the ditch, with the beſt of the ſoil about the roots, the reſt of what is taken out of the ditch thrown backward to form the bank. Quicks ſo planted cannot fail to proſper.

Bruce Campbell of *Hillas*, at Milrigg, is an active gentleman farmer. His incloſing is almoſt finiſhed. Lime is his chief article for improvement, from 600 to 700 buſhels of Wincheſter meaſure to the acre. After three corn crops, it is laid down with graſs ſeeds for two crops of hay and four years paſture. Then, without ſcruple, a ſecond liming, 400 or 500 buſhels to the acre. By repeated trials, he finds it advantageous that the lime lie two or three

years

years on the ſurface before ploughing. He takes two crops of oats. Seven buſhels produce 56. Next crop peaſe and beans, after a ſingle furrow; five buſhels produce 30. The fourth crop oats; then, after a clean fallow with a compoſt of earth, lime, and dung, bear is ſowed with graſs-ſeeds, ten pounds red clover, four pounds white, and three buſhels ryegraſs. Four buſhels bear produce 50. A better method would have been to have rotted the dung well in the dunghill, and to have carried it directly to the land, without mixing it in a compoſt, which prevents its rotting. Better alſo to have ſpared one buſhel of ryegraſs, and to have added four pounds white clover. What is mentioned above was done on outfield. With regard to the infield, I ſhall only mention as an inſtance of his management, that he ſold a crop of wheat on the foot for L. 13 *per* acre. Mr Campbell has reclaimed 25 acres of moſs from a ſwamp, which could not ſuſtain the lighteſt horſe or cow upon the ſurface from ſinking. The whole was let for 50 ſhillings. He drained it preciſely as mentioned above to have been done by Mr Hamilton

milton of Sundrum; and the ſurface ſoon became ſo dry as to be paired and burnt, and to carry a plough with horſes. Oats, the firſt crop, ſtand now on the ground, a very rich crop. I ſuggeſted rapeſeeds as proper for ſuch ground.

Many have got into the practice of purchaſing hay-ſeed from England, gathered in hay-lofts. This gentleman, among others, made the trial, but found the crop much inferior to that from ſown graſſes. It cannot be otherwiſe, conſidering that there is no choice in ſuch ſeed, but all muſt be taken, good, bad, and indifferent; beſides, it is generally the weakeſt of the kind; and, as the Engliſh always heat and ſweat their hay, the ſeed is frequently ſpoiled ſo much, that it doth not vegetate.

Twenty years ago Mr Campbell procured fine ſheep from Elwingfoot, well made, and carrying fine clothing wool. Of late he thought of improving his flock by a ram from Bakewell and one from Cully. The ſucceſs anſwered his expectation; the figure and ſize were improved, and the wool now became long and fit for comb-

ing. Bakewell's offspring had a fleece weighing from 6 to 7 pounds; Cully's offspring from 8 to 9 pounds. The fleece of the rams reached 14 pounds. The paſture is not fine, but in great abundance; the incloſure large, well fenced, and low lying. A ram bred at Newfield was put to a parcel of country ewes, which coſt Mr Campbell 5 s. 6 d. *per* head, and the lambs were ſold to a butcher for 9 s. But the paſture here muſt come in for a ſhare of the profit; for the ewes were ſold to a butcher, before the middle of Auguſt, for 9 s.

The *Earl* of *Loudon* keeps 1500 acres in his own hand. The ſoil, in general, leans to clay, and is naturally good. The greater part is ſuſceptible of much improvement, eſpecially that where there is a mixture of gravel. But it is not without its defects; a till bottom, moſs in ſeveral parts, and many ſpouty wet ſpots. His Lordſhip ſpares no pains to put this land in order, nor drains to make it dry. Some of it was ſo wet and ſpungy as to require flat ſtones at the bottom, to prevent the bruſh-

wood

wood from ſinking into the moſs. When the land is made dry, and a little manure given it, it ſends up many plants of natural graſs, which ſoon convert the ſurface into a ſward. His Lordſhip has ſeconded the propenſity of nature, by aiming chiefly at graſs.

One large field opened from ley got 100 buſhels of lime *per* acre, not leſs than 165 bolls Linlithgow wheat meaſure, the one half being laid on the graſs, the other half on the red land. The crop was oats, an immenſe quantity of ſtraw, but little corn, which points out an over-doſe of lime. The ſecond crop was ſix buſhels beans, mixed with three of peaſe, *per* acre; product 30. Third crop turnip and cabbage drilled with dung in the rows, which were three feet wide, horſe and hand-hoed completely. This crop, which was a great one, was eat by ſheep on a dry graſs field, and horned cattle in the houſe, which yielded each acre about L. 5 : 10 : 0, including the graſs they eat before they were put up. The ſheep were ſtock, and not fattened; but their value was much heightened. Upon one furrow after the turnip,

barley

barley was ſowed, five buſhels *per* acre. The apology for this thick ſowing was the multitude of crows invited here by many old trees; the product 80 buſhels *per* acre, a very great one. With the barley were ſowed twelve pounds red clover and two buſhels ryegraſs intended for the hay crop, with the addition of white and yellow clover with a view to paſture. I ſaw the ſecond growth of clover in this field, and none could be better. My admiration is, how ſuch a quantity of corn and graſs could ſtand together: Sown graſſes are commonly ſmothered with a much leſs quantity of corn. It was remarked, that that part of the field which was ploughed before liming, gave the beſt firſt crop, but was inferior to the other part where the lime was laid on the ſward in the ſubſequent crops. I was led into a very large field of old graſs filled with rich plants of graſs for fattening; white clover, ribwort, the wild fitch, feather graſs. There were in this field many horned beaſts for fattening, but underſtocked, with a view to plenty of food in winter; for they get no other food, unleſs the ground be covered with ſnow, which

ſeldom

ſeldom happens here. By this method the very fineſt of beef is at hand all the year round, and I preſume the wholeſomeſt. Cows got from Lorn make a capital figure in this incloſure. They are finely ſhaped, with a ſmooth horn, but rough hair, which laſt are ſigns of their thriving.

I admired the crops of turnip, potatoes, Aberdeen red cabbage, all in horſe-hoeing huſbandry. The laſt is thought to ſtand the winter beſt. Potatoes are in high eſteem for feeding cattle when froſt prevents acceſs to turnip, and wetneſs prevents acceſs to cabbage. They beſide make a variety, of which cattle are fond, as much as men. I ſaw tares in perfection cut green to feed horſes in the houſe in ſummer.

Oxen are employed in the plough and wain, without horſes. Mr Skelly, the Earl's overſeer, is fond of them, though yoked very diſadvantageouſly in the old way; but he has it in view to yoke them like horſes with collars and traces. Straw is their only food till January, from which time they get a little hay in the morning. In this eſtate the encouragement is great

for

for improving. What farms have been undertaken by his Lordſhip are let for 18 s. *per* acre, ſometimes to tenants who held them before at ſix ſhillings, without making any thing of them. So poor and ſpiritleſs are the tenants of this eſtate, as to have no ability for improvements, nor will, if they had ability. Yet coal and lime are at hand, and draw-kilns erected for burning; and the Earl has procured an undertaker, who furniſhes lime-ſhells at a penny *per* buſhel. This certainly will anſwer; but it ſeems that the lime is not yet come.

Here are many old incloſures, moſtly fenced with thorn-hedges. In ſeveral of them crabs are uſed inſtead of thorns, which do not make a good fence; in others they are mixed. In defence of this method, it was urged that the crabs kept down the weeds. Nothing is more common than to find a reaſon for a thing that has been done without reaſon. Why ſhould thorns be planted at all, till the ground be perfectly cleaned?

Upon every hill or hillock, for miles round, trees are planted, which afford ſhelter

ſhelter and proſpect, and in time great profit. Ornamental trees are ſcattered here and there, and many orchyards made that afford plenty of cyder. I have been diffuſe upon the improvements of this place, becauſe I think the deſcription of it may be a ſpur to other proprietors.

One word more on ſheep; for no article eſcapes his Lordſhip that can benefit the country. Mr Bakewell's kind are here, and alſo Mr Cully's, to which the preference is given. One ram bred from Cully's he lamb and ewe is preferable to any I ever ſaw. This evinces a rich paſture, and a climate not unfavourable to that kind of ſheep. I examined the flock attentively, and ſingled out a kind of ſheep that pleaſed me more than the reſt. Theſe, ſaid my conductor, are the offspring between a ram of Bakewell's and ewes that have been long in this country at Orangefield, that have wool ſhort and fine, which ſells at 14 ſhillings *per* ſtone. The wool of the offspring is longer and fit for combing, and is ſold at 15 ſhillings *per* ſtone. Each fleece weighs between ten and twelve pounds Engliſh. They lamb in January, and

and every lamb, at an average, ſells for 18 ſhillings. They are hardy, and will thrive every where in the low parts of Ayrſhire.

My road to Glaſgow led me into a part of Ayrſhire, naked of improvement, tho' the ſoil is good, and lime and coal in plenty. But no patriot has yet appeared to rouſe the people from their torpid ſtate. This part of the country gives no advantageous impreſſion of the proprietors.

In general, the ſoil of this country is good, and improveable to a height ſcarcely at preſent to be imagined. Limeſtone, ſea ſhells, and ſhell marl, can be imported at a moderate expence, ſea weed on the coaſt, and freeſtone for incloſing. Above all, there is coal in plenty, the great promoter of population in a cold country. The climate is the only obſtruction to ſtruggle with, much more rain falling in the weſt of Britain than in the eaſt. In a gravelly or ſandy ſoil, this would be no great inconvenience; activity and watchfulneſs will prevent, in a great meaſure, the bad effects of ſuperfluous moiſture. But Ayrſhire is a clay ſoil, which conſorts not well with

with a wet climate; and yet the tenants in Ayrſhire, proceeding in the track of their forefathers, adhere to the plough, without having any notion of graſs but what is barely ſufficient for their labouring cattle. And, by the ſame bias, grain is their only food. But, if Ayrſhire be unfriendly to corn, it is in a high degree friendly to graſs. And, to make it perhaps the richeſt county in Scotland, two things only are neceſſary; firſt, to dreſs their grounds high, and next, to enlarge their kitchen gardens, and to make the produce of theſe gardens the chief part of their nouriſhment. The gentlemen-farmers are going with zeal into that plan; and the tenants in time will follow.

What I have given above is but a ſpecimen of the improvements going on in this county. My time would not permit me to go through it with the attention and accuracy that would have been my wiſh. I have ſeen little, in particular, of the diſtrict of Cunningham, where I am informed improvements go on ſucceſsfully, as much ſo as in any other part of the county. I may perhaps be allowed time to bring this diſtrict alſo under my ſurvey.

Second Survey in the Shire of AYR, 1778.

FORMERLY I thought it ſufficient to give information to my employers; I now find it neceſſary to give ſatisfaction to enterpriſing farmers, gentlemen, and others, ſome of whom have complained of their having been overlooked. This I hold to be an excellent ſymptom; and accordingly I found good huſbandry ſpreading every where, and not a few valuable improvements, of which the following report is humbly ſubmitted to the Honourable Board.

I entered this country in the road to *Newmills*, a pleaſant vale; but there was little appearance of induſtry till I reached the Earl of Loudon's eſtate, mentioned in my laſt year's report. I have only to add, that oxen are conſtantly employed in the plough, harrow, and wain, and give full ſatis-

ſatisfaction in every particular. Lime anſwers extraordinarily; the crops it produces are great. The half breed of ſheep, formerly mentioned, are further proved to be preferable to thoſe of full blood.

Mr *Wallace*, a merchant in Glaſgow, purchaſed the eſtate of *Ceſnock* ſome years ago. He begins well with his improvements in huſbandry. Lime is his chief manure, of which 100 bolls are allowed for an acre, frequently 140. It is laid on old ley, to lie there two or three years before the land be taken up for corn. This practice prevails in Ayrſhire; and many eminent improvers there reckon it better to lie four or five years. It is my opinion, that, by liming on the ſward, the improvement of the graſs may equal the intereſt of the money laid out in purchaſing the lime. I cannot, however, agree to this practice. Lime expoſed to the weather many years recovers, by degrees, the air that was expelled out of it by burning, and in time returns to its original ſtate of limeſtone, and is conſequently unfit for being a manure. But this is not all. Lime ſpread upon

upon graſs, however carefully, has no chance of being ſo intimately mixed with the ſoil as when laid upon earth well pulveriſed by ploughing and harrowing. But ſtill we muſt acknowledge, that lime operates powerfully when applied as mentioned above, and ploughed the ſecond year of its being on the ſward for crops of corn; and yet it is my firm opinion, that the great effect of lime depends on that intimate mixture.

The old timber trees at Ceſnock are delightful and of high value. Twenty guineas were refuſed for one elm. Scotland was once covered with trees, which were rooted out with the ſame keenneſs that at preſent is done in America, till not a ſingle tree was left in any place where the plough had acceſs. After a long interval, the inconvenience was felt; and gentlemen, for the ſake of ſhelter, planted trees near their dwellings, to the weſt eſpecially, and ſouth-weſt. It is but of late that we have begun to plant for the ſake of beauty or profit, or ſheltering incloſures. Hence it is that old trees are not to be met with any where in the low country

try of Scotland, unleſs cloſe to gentlemen's houſes.

Near to *Galſton*, on the ſide of the road leading to Kilmarnock, I ſpied a fallow field. It is now the 10th of Auguſt, and it lies in the croſs furrow, having not yet got the third ploughing. The operator muſt be either indolent or ignorant. It hurts me to find ſuch neglect in a county remarkable for good huſbandry.

At *Ballochmile* I ſaw very extenſive improvements carried on by Sir John Whitefoord. He is happy in his overſeer Mr Bruce, whoſe knowledge in farming is great, his practice conſiderable, and his ſucceſs correſponds. Happy would it be to the farmers in that neighbourhood, were they wiſe enough to avail themſelves of the example of Mr Bruce, who has had the beſt opportunities of improvements, and in him is added, to a long experience in the practice of huſbandry, an extenſive knowledge of botany, and of the other branches of natural hiſtory. I ſhould be guilty of injuſtice to him and to the public,

blic, if I ſuppreſſed the information I received from him, contained in the following letter.

SIR, *Ballochmile, Oct.* 20. 1780.

"I was favoured with your's of the 7th September. I had heard of your being in Ayrſhire, and was ſorry I had not the pleaſure of ſeeing you here, as it might have been in my power, in the courſe of converſation, to have given a more full and ſatisfactory anſwer to your queries than can be expected in a letter.

"It will give me real pleaſure if the information I now ſend you ſhall be found of any uſe in forwarding the laudable endeavours of the Honourable Commiſſioners for the annexed eſtates to improve huſbandry in Scotland. In carrying on their ſpirited and patriotic plans, it is the duty of every intelligent farmer, who wiſhes well to his country, to contribute his aſſiſtance.

"In the few following particulars, I confine my views chiefly to this part of the country, for four or five miles round where I live, wherein I ſhall give

give a ſhort ſtate of the huſbandry and practice of the beſt ſort of common farmers, with an example or two of their method of culture, ſtock, &c. Then I ſhall beg leave to mention a few of the moſt intereſting parts of my own ſhort practice in this country; and, if I have time, ſhall offer a few remarks upon the huſbandry of Ayrſhire, and propoſe ſome amendments.

" Balloch mile, and that part of the country which lies in its neighbourhood, are ſituate upon high riſing grounds, about twelve miles diſtant from the ſea. The ſoil in moſt places is a ſtrong heavy loam inclining to a reddiſh clay.

" As the climate is rainy, and the land clay, and having early froſts in autumn, the practice of corn huſbandry is attended with many difficulties, which would require all the induſtry and attention of the moſt active to ſurmount.

" The country in the track I ſpeak of, is all under tillage, and a great part of it incloſed with ditch and hedge. Many of the fences are badly executed, but the greateſt

greateſt part are ſhamefully neglected afterwards.

"Lime as a manure has, within theſe few years, come into very general uſe amongſt the tenants, and is here in very great plenty, and in ſome places of a good quality; the price of ſhell-lime from ninepence to one ſhilling *per* boll of five Wincheſter buſhels. The roads every where are excellent, and kept in good repair.

"Farms in general are ſmall, from L. 5 to L. 30 *per annum*, ſome few riſe to L. 70, and perhaps a rare inſtance to L. 100; the average may be from L. 15 to L. 35. Leaſes are in general of nineteen years, all paid in money. In the preſent ſtate of this county, the difference between old and new leaſes is not very great, unleſs conſiderable improvements have been made by the landlord. One third, or one half advance, is good; to double is rare, and that with building, incloſing, &c.

"The lands in general are in bad culture, hardly any thing ſown except oats, which the ſoil is peculiarly adapted to. Some bear or big, hardly any barley, a few peaſe,

no

no wheat or ſummer fallow. Turnip or cabbage are not known, except in gardens. The worſt conſtruction of the old Scotch plough, drawn by four horſes, is in general uſed, without any ſort of reaſon, the land being all in tillage long ago, might be ploughed to great advantage with the ſmall Whittinghame plough, and might be uſed in moſt places by two horſes without a driver.

" Their ridges are very high and crooked, and, in the country way, are left to reſt poor, and without any graſs-ſeeds, ſo that the country muſt to ſtrangers exhibit a very diſmal ſpectacle.

" The breed of horſes are univerſally good, and kept in excellent order. Many Iriſh horſes are imported; and the country people are almoſt all jobbers in that way, and very ſharp at taking advantages where they can.

" In the preſent waſte ſtate of the grounds, their black cattle are but ſmall, and very few are bred. Their milk-cows, at calving-time, run at an average about four pounds a piece; and, ſince incloſing came to be ſo univerſally practiſed, gen-

tlemen have found it neceſſary to exclude ſheep almoſt wholly.

" They all lime upon the ſward, from four to eight year old leys. Many of the tenants burn their own lime, and lay on at the rate of from fifty to an hundred bolls to an acre *. Some take four crops of oats, and ſo let it reſt; others only three crops; and ſome few, who do ſtill better, take two crops of oats, and give a thin dunging; then take bear, and ſo reſt.

" N. B. If ſome hay-ſeed and white clover were here added, it would be ſenſible; but I am ſorry I cannot find this to be the caſe.

" Their practice upon their infield or croft land is, to break up their four year old leys with a ſlight liming, or with their dung. They take two crops of oats, then bear, and ſo reſt, without graſs-ſeeds.

" Few in this neighbourhood begin to plough till February. Some are now beginning

* In this paper the Scotch acre is always to be underſtood.

In meaſures, the Wincheſter buſhel, and in weights the Trone ſtone of 24 averdupoiſe pounds, unleſs the contrary be expreſſed.

ginning to break up their leys throughout winter; others ſay it is bad for the lands, and waſhes. Their horſes being quite idle throughout the winter, are now in great ſpirit; and, except feeding an hour in the middle of the day, plough from morn till night without intermiſſion, and will do rather better than an acre a day. They generally plough with four horſes, ſome with three. It is rare to ſee two horſes without a driver.

"It is amazing that draught oxen are entirely unknown, except in one or two inſtances, and theſe only by gentlemen.

"Every farmer manufactures his own crop into meal, and in general his bear into malt, and afterwards diſpoſes of them about the country to his beſt advantage. There are no corn markets in this country. I might likewiſe mention, that, in the preſent ſtate of this country, every farmer keeps a ſuperior ſtock of milk cows, much above what might be expected. This may proceed from a peculiar turn which prevails for the dairy; which practice is good, if made conſiſtent with rearing calves and

and breeding; likewiſe feeding fat; but theſe muſt all give way to the dairy.

"The profit of a cow from 40 to 50 s. ſay L. 2 : 5 : 0; and if 30 s. be deduced for winter and ſummer feeding, the trifling profit of 15 s. would perhaps ſtrike them with ſurpriſe, and this the more, as the profit of hogs is altogether unknown.

"Theſe, in general, are the outlines of our oeconomy here.

"I ſhall now beg leave to lay before you a particular ſtate of one or two of the better ſort of country farms, which will likewiſe ſerve to illuſtrate what has hitherto been advanced.

"Some particulars of a corn farm, partly incloſed. Take as follows:

150 acres in all.
100 graſs.
50 arable.
L. 65 rent, together with ceſs and road-money to be added.
6 horſes.
1 Colt.
12 milk cows.
18 young cattle.

30 ſheep.
No piggs.
2 men, wages, L. 6.
2 boys, wages, 20 s.
1 maid, wages, L. 3.
Wages in harveſt, with victuals:
Men, 21 s.
Women, 17 s.

" Six year old leys limed on the ſward, at 80 bolls *per* acre. Take three crops of oats; ſow ſix buſhels, and get upon an average 48.

" For croft land reſted four years, dung or lime upon the ſward, and take, 1ſt, oats; ſow 7 buſhels, and get 55; 2d, bear; ſow $3\frac{1}{2}$ buſhels, and get 48; 3d, oats, ſow and reap as above; 4th, peaſe; ſow 3 buſhels, and get ſometimes 24.

" Have this year one acre of ſown graſs; plough generally with 4 horſes and a driver.

" Another, all incloſed, upon a ſtrong clay. Take as follows:
80 acres in all.
48 graſs.
32 arable.

L. 24

L. 24 rent.
15 acres oats.
12 bear with graſs-ſeeds.
2 peaſe.
3 meadows.
4 horſes.
No oxen.
2 colts
10 milk cows.
6 young beaſts.
1 fat beaſt.
2 pet ſheep.
Sometimes keeps a brood ſow, and finds it profitable.
Wages in harveſt:
Men, 21 s.
Women, 17 s.
2 ſervants, 1ſt, L. 7 : 10 : 0
2d ditto, L. 6.
1 maid, L. 3.
1 boy, L. 1.

" Generally plough with four horſes with a driver; ſometimes with two, but rare. Lime ſix years old leys, and break them up firſt February thereafter, at the rate of 100 bolls *per* acre, and crop as follows: 1ſt, Oats; ſow 6 buſhels, and get

get 48. 2d, Oats; ſow the ſame, and get ſometimes better. 3d, Beans and peaſe; ſow 3 buſhels, and get 16. 4th, Bear with 3 earths; ſow 4 buſhels, and get 36. The bear crop ſown with 10 lib. clover, and 2 buſhels ryegraſs.

" Have tried wheat after peaſe and beans, and had a good crop; and thinks, after fallow, he might get good crops of wheat.

" That I may not be too tedious in multiplying examples. I ſhall only beg leave to produce one other important inſtance of a Northumberland farmer ſettled ſome years ago in this part of the country, whoſe oeconomy and ſtock, I believe, may be depended upon.

" Farm generally a ſtrong clay, and partly a black muir earth, all incloſed, and very well ſheltered with belts and clumps of planting.

165 acres in all.
110 graſs.
55 arable.
L. 148 rent
8 horſes.

1 colt.
15 milk cows.
1 bull.
4 young beaſts.
6 fatting beaſts.
4 men, wages, L. 7.
1 boy, L. 2.
2 maids, L. 3.

Implements.

2 ploughs, Whittinghame kind.
1 break.
1 roller.
4 double carts, &c.

"Eight year old leys broke up with, 1ſt, Oats without lime; ſow 7 buſhels, and get 48. 2d, Peaſe, and part oats; peaſe are uncertain. 3d, Oats. 4th, Summer fallow with lime and dung. Lime at the rate of 70 bolls *per* acre, and ſow. 5th, Wheat, and part bear and barley, all ſown out with graſs-ſeeds, 10 lib. red, 5 lib. white clover, and 3 buſhels ryegraſs *per* acre.

"Take two crops of hay, and paſture ſix years.

"Uſe horſes in a plough, and do acre a day.

"Sow

"Sow 3 buſhels wheat, and get 48. Bear, ſow 3 buſhels, and get 48. Peaſe, an uncertain crop.

"Have tried turnip, and find wheat more ſure.

"Have tried flax, but think it ſcourges the land, and deprives the cattle of fodder, and, upon the whole, is not profitable here.

"Have ſown ſix acres lint in one ſeaſon, 8 pecks *per* acre of ſeed, and ſaved over the field 24 pecks *per* acre. Stacks the lint over winter, and ſteeps it in the firſt of May, after threſhing and cleaning, &c. the ſeed.

"The kind of lime uſed here is a caulmſtone burnt; it operates but ſlowly; but its good effects appear beyond the fourth year.

"I ſhall draw no concluſions from the above particulars, nor ſtate a compariſon between the practice of the ordinary farmers of this country, and thoſe of the laſt mentioned gentleman.

"In juſtice, however, to ſeveral noblemen and gentlemen here, I muſt obſerve,

that they have exerted themſelves to introduce better practices, and a more ſpirited mode of agriculture; particularly the Right Honourable the Lord Juſtice Clerk, for having not only brought the above mentioned intelligent farmer into the country, but likewiſe an ingenious plough and cart-wright, bred at one of the beſt manufactories in the north of England, whoſe carts and ploughs are ſpreading in the country very faſt.

"By an attention and expence ſo praiſeworthy as this, and the example followed by others, local prejudices would in time wear out, and this beautiful country become one of the richeſt in Scotland.

"Having already tranſgreſſed the ordinary bounds of a letter, I ſhall now take the liberty, in a more curſory manner, to mention only a few of the moſt capital parts of my own practice.

"The parks of Ballochmile are all well incloſed, between 200 and 300 acres, generally a ſtrong wet heavy clay, naturally producing ruſh, ſpret, carex, &c. all theſe encouraged by the wetneſs of the ſoil and bad huſbandry.

"In

"In narrating matters of huſbandry, I think it equally unfair to ſuppreſs the unſucceſsful parts, as it would be to add favourable circumſtances to thoſe already proſperous. Therefore I ſhall relate matters juſt as they ſtand.

"After premiſing that, in this place, we uſe the ſmall Whittinghame plough, and likewiſe the Norfolk wheeled plough, two horſes and no driver, take a ſix inch furrow, and ſeldom plough ſo much as half an acre *per* day.

"In 1775, a ten acre field that had carried a crop of oats the preceding year, the ridges high and crooked, gave it a winter furrow. Spring 1776 was favourable; reduced and cleared the field with other four ploughings; gave it a very ſlight liming, 30 bolls ſhells *per* acre; threw it into 15 feet drills, which were ſlightly dunged, and ſown with turnip; 7th to the 15th of June finiſhed, and it turned out a a very good cloſe middling crop, nearly equal to the beſt I ever had in Berwickſhire.

"The ſeaſon was favourable, and they were regularly horſe and hand-hoed. The autumn

autumn rains ſoon deluged the field, and rotted many, notwithſtanding they were uſed early in the ſeaſon, being drove off to a graſs field for feeding Highland ſtots and ſheep, a bad way of uſing them in this high wet country.

"In ſpring 1777, as ſoon as the ſeaſon would permit, croſs ploughed, and laid the field in nine feet ridges, and latter end of April ſowed it with barley.

"Red clover 15, and white 10 lib. to the acre, with three buſhels ryegraſs. The wet clay parts had little or no barley, but a moſt extraordinary crop of graſs. The dry ſound parts of the field brought a luxuriant crop, both of barley and graſs.

"In 1778, a rich crop of hay is cut from the field this year; but find, upon the clay parts, the clover much gone off, and in the furrow ruſhes appearing in plenty; but theſe only in the clay parts.

"Laſt year, 1777, was a wet ſummer here. I had another ten acre field, all ſtrong clay, in preparation for turnip and cabbages, after a crop of oats the preceding year. I only got forward with two acres of turnip and one acre of cabbage in good

good time, and was ſtopt by the rains, when I turned my thoughts to a crop of wheat upon the remainder of the field, which was ſubſtantially dunged and limed at the rate of 120 bolls *per* acre. Threw the whole into nine feet ridges; ſowed three buſhels *per* acre by the 12th Auguſt, and part 1ſt September, and the laſt upon the 21ſt October. The early ſown a very fine crop, at leaſt 48 buſhels *per* acre, but was not ready for cutting till the 15th September; the middle ſowing was equally good. The lateſt ſown was not ripe till three weeks after, and a very thin crop, and not well filled.

"The turnip part of the field a mere ſhadow, little larger than gooſe eggs, not above eight ton *per* acre; and the cabbage very trifling.

"The above field was ſown out with graſs-ſeeds amongſt the wheat, and part amongſt barley. Thoſe amongſt the barley the beſt, but both very good. The barley very bad, occaſioned by a wet ſeaſon after ſowing.

"From the above, and ſome other trials I have made here, I have every reaſon to conclude

conclude that, in a dry favourable ſeaſon, with due preparation, very good crops of turnip may be got. Wheat likewiſe may be a ſure crop, if properly attended to in preparing the ground, and ſowing about the beginning of September at fartheſt. Graſs-ſeeds, if they are not ſown with too niggardly a hand, will pay the induſtrious cultivator moſt liberally. Peaſe, I know from experience likewiſe, in a dry ſeaſon, to be a profitable crop after oats upon limed land. Spring tares I have tried two years unſucceſsfully, both times owing to late ſowing.

" From the above ſhort, but I hope, true ſtate of agriculture in this part of Ayrſhire, many inferences might be drawn, and deductions made, which I ſhall leave to the ingenious who may peruſe this paper, and only for a moment longer beg your indulgence, while I obſerve, that,

" Since lime is plenty, and marl to be found in ſome places; the ſoil in general extremely good, and the lands all well ſituated for culture; the people ſtrong, numerous, and healthy; a good breed of horſes, and in general the land cheap rented; this

this ſeems to be a ſpot where, in ſome future period, great things may be expected in agriculture.

"Let gentlemen, by a ſpirited example, point out to their tenants and others, the moſt improved practice in huſbandry, and perſevere in them for a few years, and, in different places of the country, introduce a good ſouth country farmer, whoſe example might perhaps operate more than the landlord's. And, finally, if I might venture to give a hint or two, of ſo much conſequence to the public as the improvement of a country, I ſhould, with the utmoſt diffidence, propoſe, firſt, to better their practices in tillage; ſecondly, to have fine fields of graſs pointed out as their principal object. And,

"As the ſtubborn ſoil here is but too juſt an emblem of the prejudices and ſtrong prepoſſeſſions of the inhabitants, it would therefore be adviſeable not to puſh them on to the very extremity of good culture all at once. Their eyes will open by degrees. At firſt, to introduce ſummer fallow as a means only of reducing theſe unprofitable high ridges. Totally to level

and

and alter them all at once, is beyond the ability of very many, and againſt the inclination of almoſt all.

" Therefore, in cropping the infield or croft land, let that be done in its preſent ſtate and form, previous to any ſort of manuring. Lay it into three or four breaks, according to the ſize of the farm, and ſo reduce the ridges by four or five cleavings and croſs ploughings; manure and ſow the ridges thus reduced without alteration. The outfield land in the ſame manner. Time will ſhew them the propriety, and even neceſſity, of totally levelling and ſtraighting both.

" Once perſuade them to ſummer fallow, and reduce the high ridges, (one third waſte at preſent), great crops of oats will be gained, off all their worſt outfield lands, with lime only; and, upon their croft and better ſort of field lands, they may, with half liming and dung added, have good crops of wheat, beans and peaſe, barley and oats in courſe.

" But if, in this wet cold climate, the ultimate views of gentlemen farmers could be brought to terminate in luxuriant crops

of

of graſs, which is very attainable, and to raiſe their rents partly by rearing young cattle and horſes for ſale, feeding fat both ſheep and black cattle, which, together with the dairy, would in the end, and with far leſs expence, make them both rich and happy; in place of annually ploughing this heavy wet ſoil, to the great oppreſſion of men and horſes, who, after all their labour, are not able, in many inſtances, to gain twice the ſeed they ſow. This is no leſs a true, than a melancholy fact.

"As a further and neceſſary improvement, let me recommend to every well-wiſher of his country, not as a local, but as it would be a national advantage, that the uſe of oxen for the draught by all poſſible means be brought into practice in a country and ſoil ſo highly proper. This topic has already been ſo fully diſcuſſed by many able pens, that I paſs it over; and ſhall conclude this tireſome letter with pointing out to the induſtrious and well-meaning farmer, a courſe or two of corn cropping in his proſecution of the above plan, previous to ſowing off his land with graſs-ſeeds.

"Upon his worſt outfield land take, firſt year, ſummer fallow, and reduce the high ridges, and with the laſt furrow lay them gently round, ploughing in your lime before harveſt, 100 bolls *per* acre at leaſt. Second year, oats. Third year, peaſe and beans. Fourth year, bear, after two furrows; and if a little dung is given, the better, and ſow off the bear land with 12 pound of white clover and four buſhels ryegraſs or hay-ſeed, to be paſtured ſix years at leaſt.

"Secondly, upon the croft and better ſort of outfield ground, having, previous to manuring, taken what crops of oats, &c. are requiſite from the part intended for ſummer fallow, the ridges being reduced by two cleavings and two crops ploughings; let the laſt ploughings be a gathering furrow; immediately before which, ſpread your lime at the rate of 50 or 60 bolls *per* acre; likewiſe the dung; let both of which be equally ſpread, and the ridge gathered up with a light furrow. Firſt year, wheat, ſow three buſhels red Kent by the firſt of September at lateſt. Second year, bear or barley. Third year, peaſe and

and beans. Fourth year, bear or barley with graſs ſeeds; 12 lib. red, and 8 lib. white clover, *per* acre, with three buſhels ryegraſs; to be cut for hay two years, and paſture at leaſt ſix.

"But, if wheat is not reliſhed as a crop in courſe, then the following may do: Firſt year, fallow with lime and dung as above. Second year, barley or bear. Third year, oats. Fourth year, peaſe and beans. Fifth year, bear, and ſow with graſs-ſeeds as above.

"But it is unneceſſary to multiply courſes, as theſe, and every other thing relating to the beſt practical huſbandry, are treated at full length in the Gentleman Farmer, lately publiſhed. If the Honourable Author of that valuable little work were pleaſed, in a future edition, to make its title page leſs formidable to poor country farmers, it would be more generally read, and I know of no book ſo proper to be conſulted.

"Therefore, at preſent, ſhall only beg leave, that, in caſe of a more enterpriſing farmer, he might promiſe himſelf ſuperior advantages in the following courſe: Firſt, ſummer

ſummer fallow, level and ſtraight the old ridges, and manure as above. Second year, wheat over the whole fallow. Third year, a miſcellaneous crop of part potatoes, part turnip, cabbages, drilled beans, and part tares for a green feed in place of clover; theſe all well horſe and hand hoed, except the tares, will make an excellent preparation for, fourth year, barley, to be ſown out with graſs-ſeeds as above directed, which may be ſafely mown two years for hay, and afterwards paſtured from four to ſix years or more.

"From the ſmall knowledge I have of the genius and manner of the country people here, I have ventured the above as my preſent opinion of the manner by which improvements in huſbandry might be introduced, ſo as to become general in this part of the county.

"In giving the above directions, many years practice and experience have been my guide; truth, and a regard to uſefulneſs, my motive; both which have been more in my eye than any regard to trifling embelliſhments. It will make me infinitely more happy, if the above, or any part of it,

it, ſhall anſwer the intention of the Honourable Commiſſioners, or coincide with the views you had in writing me.

"That the plans of that honourable and patriotic body may be attended with the higheſt ſucceſs, is the earneſt wiſh of," &c.

At *Lorn Caſtle*, the very venerable and highly reſpected Counteſs of Loudon reſides, now in the 98th or 99th year of her age, as I am informed, and yet as entire in memory and judgment as in the prime of life. Her Ladyſhip has graced this country in many reſpects; but I am confined to her huſbandry improvements. Fifty years ago, when this Lady took up her reſidence at Lorn Caſtle, not a tree was to be ſeen, a ſcrubby wood excepted; and now the fineſt oaks and other barren trees are ſtriving, as it were, which ſhall riſe higheſt. The plantations are extenſive, and all trained in the beſt order, every thing directed by the Counteſs herſelf. The ſoil of her farm is far from being kindly; yet, by ſkill and perſeverance, ſhe has brought it into high order; not greater verdure

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can be ſeen any where. In a word, her farm graces the county of Ayr, and might grace the richeſt counties of Britain.

I had the honour, which will not readily go out of mind, to be introduced to this noble perſonage. She entered familiarly into a converſation with me, and ſurpriſed me with her knowledge in huſbandry; diſcourſed on the qualities of various graſſes; inquired into the method of raiſing potatoes from the apple; and expreſſed uncommon zeal for huſbandry improvements. There perhaps does not exiſt in the world ſuch another woman.

The wages of labourers are high in this county, from 12 d. to 14 d. *per* day, occaſioned by the great drain of men for the army. This bears hard upon agriculture; but the public muſt be ſerved; and, in the mean time, children are growing up to fill the vacancy.

In my former ſurvey of this county, I had occaſion to mention ſome miniſters, exemplary not only for good living, but for good huſbandry. I am glad to add to the liſt Mr *Connal*, miniſter of *Sorn*, who adheres

adheres to the following rotation. Lime is at hand, fivepence *per* boll. He lays 100 bolls *per* acre on the ſward, to be opened up for oats, peaſe, oats. Graſs-ſeeds are ſown with the laſt crop, barley ſometimes inſtead of oats; and ſix years paſture finiſhes the rotation. This method cannot fail to produce good crops; and, where lime is to be had, it may ſuit even the humbleſt tenant. I only doubt a little whether lime be not here too often repeated. Judicious farmers agree in theory, if not in practice, that, in the culture of a field, change of feed is not more neceſſary than a change of manure.

As I advanced toward *Cumnock*, I paſſed through a farm of *Lord Auchinleck's* eſtate, moſtly a thin mooriſh ground. I caſt my eye upon a very good crop of oats after fallow and lime. The ridges were raiſed ſo high as to leave the furrows bare of ſoil, and without a ſingle ſtalk of corn. I do not pretend to condemn this method in a wet climate. High ridges preſerve dry four-fifths of the ſurface; and better abandon the remaining fifth, than that the whole

whole ſhould be wet. But I find ſpeculative improvers, and now and then a practical farmer, doubting whether very narrow ridges, well gathered up, and carefully under furrowed, would not anſwer better. I am confirmed, by long experience, that no ridge ſhould be narrower than 15 feet.

Lord Auchinleck is a moſt aſſiduous planter, and equally careful of his trees, though, indeed, in that wet climate, they require little elſe but to be fenced from cattle. His incloſures are extenſive, and his own farm is moſtly in graſs. Upon his broad walks lined with trees, and conſequently well ſheltered, hay is commonly taken. But the culture of corn, a moſt laborious operation in a wet climate, and clay ſoil, is generally left to tenants; nor, in ſuch circumſtances, can ſucceſs be expected but by cloſe and punctual attendance. His Lordſhip, therefore, in my opinion, judges rightly in confining himſelf to the propagation of trees, which require not cloſe attendance. His office as judge in the two ſovereign courts of ſeſſion and juſticiary, occupies at leaſt two thirds of his time;

time; and every time he returns home he has the ſatisfaction to find his plantations in a proſperous ſtate, and every tree growing more and more beautiful.

Cumnock is a neat clean village, pleaſantly ſituated near the water of Lugar. Here is carried on a ſmall branch of the woollen manufacture. A few ſhoemakers in that town make for exportation about 3000 pair of ſhoes, a conſiderable article for private tradeſmen.

Dumfries-houſe was built by the late Earl, who, at the ſame time, incloſed and planted much. In particular, 35 acres, not far from the houſe, were planted with oaks, which are now beautiful and grow luxurioufly. This has encouraged the preſent Earl to continue theplantations in belts round his incloſures, and clumps on every height, which embelliſh the country at preſent, and in time will be very profitable. The land which the Earl has in his own hand extends to 1200 acres, including pleaſure ground.

Lady Dumfries is the beſt aſſiſtant that ever bleſſed a man who delights in improvements. She is the very ſoul of huſbandry and manufactures in that part of the country. She zealouſly patroniſes the woollen manufacture at Cumnock, and the linen manufacture all around, giving premiums to promote each. In that view, her Ladyſhip has excellent crops of flax on her Lord's farm, ſo extenſive, as more than once to have gained premiums given by the truſtees for manufactures.

More particularly with reſpect to agriculture, it is amazing what ſkill her Ladyſhip has acquired in a few years, which ſhe puts in execution, by relieving her Lord almoſt wholly of the trouble of attendance. She is a ſubſtitute that leaves nothing undone. A field of level ground, frequently under water by the overflowing of the river Lugar, was rendered no better than a bog. Much draining was neceſſary, and parallel drains were opened; the diſtance more or leſs, according to the degree of wetneſs, and all filled with bruſhwood. The ground being made now dry,

dry, a part proper for turnip was dunged in the rows, well hoed, and a very good crop raiſed. The reſt was fallowed for corn, ſtraight ridges made 10 feet broad, and 50 bolls ſhell lime given to each acre. One half was ſown with wheat: I ſaw the crop, which was uncommonly good. The barley on the remaining part was good. The whole was ſown with graſs-ſeeds, never again to be opened.

His Lordſhip's mode of liming is 100 bolls of ſhells *per* acre, laid in ſummer on the graſs ſward, to lie three years before opening with the plough. The reaſon given is, that this limeſtone, being full of ſand, falls not into powder in leſs time; and that even then it is not fine, but of a gritty ſubſtance; which, however, operates mightily upon the clay ſoils in this country. The quantity of ſand in that limeſtone is indeed a good reaſon for the great quantity that is given of it, but not for allowing it to lie ſo long on the ſurface, ſubject to the inconveniency of returning in ſome degree to its original ſtate of raw lime-ſtone *. Nor can I have any doubt, but that plenty of water will make it fall inſtantly

* See p. 235. and vol. II. p. 142.

inſtantly into as fine powder as it will do by being long expoſed to moiſture from the air. There is a lime-ſtone quarry in that neighbourhood, which, when ſlaked, falls into very fine powder, and is reckoned better upon light ſoil; undoubtedly, becauſe light ſoil would rather be hurt by ſand, which is little inferior to lime itſelf for clay ſoil.

Turnip, cabbage, potatoes, peaſe and beans, are raiſed on the light ſoils, all in drills, which make a fine preparation for barley and graſs-ſeeds. The clay land is ſummer fallowed for wheat. On land opened from ley, oats is the firſt crop. If it be very ſtiff, a ſecond crop of oats is taken, in order that the ſward may be thoroughly rotted. The next crop is drilled beans with dung.

There being a great demand for graſs in this country, no ſooner is an incloſure ready to be let, than there are many bidders for it. The Earl's only difficulty is to confine them within bounds; and he ſeldom accepts of rent more than 20 s. *per* acre. This demand for graſs is not confined to graziers. The neighbouring tenants

nants ſtand as much in need of it. Rather than lay down any part of the farm in graſs, they are willing to pay the rent mentioned; though it is ſeldom that their farms in corn return above three after one. Strange, that men ſhould be ſo blinded by cuſtom againſt the light of common ſenſe. But Ayrſhire need not ſurpriſe us. The low country of Berwickſhire was in the ſame ſtile 30 years ago; and Eaſt Lothian too, wherein a few obſtinate tenants ſtill perſiſt to perſevere even to this day.

Red clover does not ſucceed here. In a rainy climate, the ground is ſeldom dry in winter; and upon ground when wet froſt makes a great impreſſion. Hence it is that red clover does not thrive here. It is too tender either for froſt or for moiſture. Ryegraſs never fails, and is ſown in plenty. I recommend white clover and ribwort as hardy plants, that can endure a ſevere ſeaſon.

Sheep of any kind and weight will thrive here, as the paſture is fine, and the graſs riſes in plenty. The Earl, therefore, is thinking of improving his ſheep by croſs breeding. At the ſame time, his object

is

is not the higheſt priced ſheep, but what will ſuit the general ſtaple of the country. The laſt thing I have to obſerve is, that the water of Lugar is a troubleſome neighbour, by laying waſte many fine ſpots on the banks. The Earl, by a laborious work, has widened its bed, raiſed banks with an eaſy ſlope, and ſowed natural graſs to bring a ſward on the bank, that may preſerve it from being pitted by the water in a flood.

My courſe carried me over high land, expoſed to ſtormy weather, a poor thin mooriſh ſoil, and little done to make it better. In the midſt of a ſcene ſo diſpiriting, I was refreſhed by the incloſures of *Drongan*. Perceiving the hand of an intelligent and bold enterpriſer, I learned that all was done by Mr *Smith*, whom I unluckily miſſed. The ſoil cannot be boaſted of; but this gentleman, by a ſingular effort of genius and application, has made a wonderful change. I begged of him in a letter to favour the public with particulars. His anſwer follows.

SIR,

SIR, *Drongan, Sept.* 3. 1778.

"I had ſome time ago the pleaſure of receiving a letter from you. I am ſorry I was ſo unlucky as to be from home when you intended me the honour of a viſit; but, had you examined more particularly the ſtate of my farm, and manner of cultivation, you perhaps would not have had ſo high an opinion of my knowledge as a farmer as you ſeem to have at preſent; though it is certain my farm wears a very different aſpect now from what it did in the year 1770, being the firſt ſeaſon I had it in my power to get any quantity of manure brought to it worth mentioning, on account of having no made road till that time; and as, ſince that time, I have had too many things to do to attend to the *minutiae* of farming, my methods of cultivation have been very ſimple. In the firſt place, moſt parts of my land were outfield long reſted, at leaſt fifty years, and covered with a mixture of ſhort flowering heath, bent, and ſpret, in which caſe my way has been to lay on the ſward at the rate of 160 bolls of five Wincheſter bushels

buſhels of lime in powder *per* acre; ſometimes more, but never leſs on old reſted land. But, though I ſay at the rate of five Wincheſter buſhels of powdered lime to the boll, I do not mean that my lime is reduced to powder before it is laid on the land, as I always lay it on as ſoon as I can from the kiln, and it is often too much ſlaked with the weather before I can get it led out. This lime I ſometimes let ly on the ground three years before ploughing, as I am convinced the longer it lies the better *, and never plough any that has not lain at leaſt one year, unleſs ſome ſmall part of a field that has not been finiſhed for want of lime, or ſome other circumſtance. From that land I commonly take three crops of oats running, the laſt always the beſt; and I always find the crops beſt where the lime has lain longeſt on the ſward, but moſt remarkably ſo in the firſt crop. After the three crops of oats, I generally ſow gray peaſe; but, as the ſoil and climate are unfriendly, it is frequently late in the ſeaſon before I can ſow them, I ſeldom have many peaſe, but always a great quantity of ſtraw, equal to any crops of

* See p. 235. and vol. II. p. 142.

of hay I can expect; ſo that I do not think myſelf diſappointed. After the peaſe I ſow bear, with about eighteen pounds of red and white clover, and three buſhels of rye-graſs to the acre, giving betwixt forty and fifty double carts of dung to the acre, and two or three ploughings, as the ſeaſon, and my other operations, will permit. This is my method when the land is well ſwarded, and the ridges narrow, and of courſe flat or even, ſo that I can eaſily make them ſtraight, without burying any of the manure; but, when the ridges are broad and raiſed in the middle, or any bare places that have been made ſo by the ſtorms, I then ſummer fallow the land, if I may uſe that expreſſion, before I lay on the lime; but it almoſt as properly deſerves the name of winter fallow; for I give it the firſt ploughing in the winter, when, on account of the ſtiffneſs of the ſward and bent roots, I am obliged to take as large a furrow as four oxen or four good horſes can draw, to make it turn over.

"In that ſtate it lies all next ſummer, the following winter and ſpring; for, was it to be attempted ſooner, which I have done, no plough, with ever ſo ſharp irons,

could cut it to plough it croſs; as ploughing it in the ſame direction as firſt time, before the furrows get time to grow together, would make every one of them turn over whole. In the courſe of the ſecond ſummer I get it reduced to a proper tilth, the ridges made ſtraight, and the lime, about 100 or 120 bolls an acre, laid on, and ſometimes ſpread and ploughed in, and ſometimes I do not get the whole lime on till I get it on in the time of froſt, and then uſe it in the ſame way as when limed on the ſward; which method I rather prefer, though my experience is not ſuch as enables me to decide which is beſt. I have ſometimes tried peaſe firſt after fallowing and liming, but never had a crop equal to the ſeed and labour, allowing only for one ploughing; and ſome gentlemen not far from me have tried it with no better ſucceſs. I alſo ſometimes give dung for the peaſe, after three crops of oats, and make bear afterwards without any, which anſwers tolerably well; but I think it beſt to give the dung to the bear.

"You will perhaps be ſurpriſed that I mention nothing of wheat, beans, and barley.

barley. I have tried them all; and tho' I have had tolerable crops, yet I am convinced, that, in ſuch a climate as Ayrſhire, oats, gray peaſe, and bear, are more profitable. I ſhould have mentioned, that my land is generally a ſtrong red clay. Beſides lime, I have laid on, at different times, 300 or 400 tons of ſea-ſhells, at the rate of fifteen tons to the acre; but think lime anſwers fully as well; and on one field of twenty-one acres, after treating it as already mentioned with the bear crops, I harrowed in 860 barrels of horn ſhavings, and had a very indifferent crop. What effect they may have when the field is broke up again, I know not; but I ſhall not be in haſte to purchaſe any more of them. Thus have I ſat down, in a very bad forenoon, to anſwer your letter; and if you again have occaſion to be in this country, will be happy to ſee you at this houſe, I am, &c.

"P. S. Since the year 1769, I have laid on near 100,000 bolls of lime."

I wiſh, for the ſake of good thorn-hedges, that every man who deals in ſuch fences

fences would take a leſſon from Mr *Fullerton* of *Roſemount*. None I have ſeen go before them. They would have been ſtill better, had the ſheers been uſed more ſparingly, and had they been trained as directed in the Gentleman Farmer. In the former report, I have deſcribed the plan of his ditch, and way of laying the quicks. I call this gentleman a ſpirited improver; for, in the ſpace of ten years, he has erected a large elegant houſe, and made a garden ſuitable to it. He has completed an extenſive ſhrubbry, humouring the courſe of a winding rivulet, done in the higheſt taſte. And, to ſum up all, no fewer than 500 acres, never before cultivated, are divided into neat incloſures, manured, dreſſed, and now in graſs, paſtured by ſheep and horned cattle. It was my misfortune to miſs Mr Fullerton; but my loſs was ſupplied by his Lady, who received me with great affability. It appears that ſhe has not been an inattentive ſpectator to her huſband's operations; for ſhe gave me the following account of them.

A ſummer fallow was always laid hold of to level and ſtraight the ridges. Thoſe that

that were made 15 feet broad have anſwered beſt, both in graſs and corn. A ridge of 10 or 12 feet broad cannot be cleaved at every ploughing; and if gathered twice, it is raiſed too high for the breadth, which alſo renders it difficult to be properly ploughed for any crop or crops to follow. Nor can it be turned conveniently into alternate crown and furrow. Though the ridges were not altered till the ground was made perfectly level, yet the old crowns and furrows appear diſtinctly to this day. To lower and ſtraight ridges in a rainy climate, like that of Ayrſhire, muſt be a very difficult operation.

This farm being but a few miles from the ſea, about 350 cart-load of ſea-weed is annually brought to the farm, and mixed with dung from the ſtable and byre. It is in the month of Auguſt ſpread upon the fallow, and turned in with the plough at ſeed-furrowing. Wheat is ſown the firſt week of September. If barley be the crop, it is not ſown till the laſt week of April. Graſs-ſeeds are ſown with the barley, not with the wheat; three buſhels ryegraſs, four pounds red clover, eight of white, two pounds

pounds of yellow clover, and as much rye-graſs. I need not add, that they are intended for paſture, not for hay.

Turnip is raiſed from ſea-weed. Cabbage is tried this year upon ſea-weed, and alſo upon compoſt. The ſea-weed appears to do beſt.

I add as a voucher of Mr Fullerton's ſkill, that every crop I viewed was good and early; wheat, barley, oats, bear, peaſe, and beans.

Clay ſoil, on a till bottom, in a rainy climate eſpecially, ſhould never be laid down flat in graſs. I graſp at every opportunity to condemn this pernicious practice, though few gentlemen give proper attention to it. Mr Fullerton has fallen into this error, through the motive, I preſume, of having a fine lawn round his houſe. The land is rendered ſo wet by every fall of rain, as to be poached with cattle, and ruſhes have got up and are ſpreading. Nay, on ſeveral ſpots, water lies on the ſurface. This quick-ſighted improver, ſenſible of his error, intends to open the field again, to form the ridges of a proper breadth, and to be ſo raiſed as to ſend

every

every drop of water to the furrows; and theſe being kept open, will preſerve the land perfectly dry.

As the ſtate of the farm is now ſuch as to afford rich paſture in every field, Mr Fullerton intends to paſture with ſheep, in order to prevent poaching; and he is intent upon having the very beſt kind. But here I muſt enter a caveat againſt breeding from ewes that carry ſhort wool, and a ram that carries long. They ſhould never be mixed; becauſe the wool of their progeny muſt be of a mongrel kind, unfit either for the combing or clothing manufacture.

I loſt much inſtruction by the abſence of Mr *Dalrymple* of *Orangefield*. He has a notable ſubject to work on; and, from every appearance in the great plain where his houſe ſtands, not a ridge is left unimproved, a great part of it being covered with graſs. His fences are good, and his hay, ſtanding in ricks on the field, appeared a great crop. He draws, as I am informed, 40 s. *per* acre for many of his paſture fields.

It

I bent my courſe to the houſe of *Fullerton*; the proprietor was alſo abſent. This eſtate is juſtly famed for the real improvements done by the late Mr Fullerton. I ſay nothing of the preſent proprietor. His character, as a man of ſcience and talents for buſineſs, is well known, both in Britain and France. As this gentleman ſhowed an early inclination for improvements in huſbandry, and as he has many hundred acres to work on that were not overtaken by his father, there is little doubt, if he had ſettled at home, that his ſuperior talents would have enabled him to make a figure among the moſt celebrated improvers in Britain. But ambition led him to a higher ſphere of action, and has deprived this country of a youth who, in all appearance, would have been one of its chief ornaments for agriculture; but I hope not for ever. After he has ſerved his country, and gratified his ambition, it is hoped he will return to private life, and follow out with ardour the embelliſhment of his fields and improvement of his fortune.

If

If the erecting a large church, with a genteel ſteeple, be evidence of a thriving town, *Irvine* is in that ſtate. It flouriſhes by the coal trade; and any ſtaple article of commerce never fails to promote other articles. The coal trade at Newcaſtle is what brought on many other branches of commerce, which have made that town rich and populous.

Aſhgrove is not a delightful ſituation, nor much planting on it, the ſoil a cold wet clay, and part of it a ſort of moraſs; yet Provoſt Bowman of Glaſgow, an eminent merchant, made the purchaſe from the motive of its being the place of his nativity; but, being a ſtranger both to the theory and practice of huſbandry, he proceeded with wary ſteps. His firſt attempt was on a piece of wet obſtinate land, of about two acres, intended for a garden. By hollow drains covered above, he has dried the ground effectually. Sand, ſea-ſhells, and lime, were laid on in abundance, which were intimately mixed with the ſoil by frequent ploughing and harrowing. And now the ground is improved to a gar-

den mould, ſo effectually, that no where are there to be ſeen better crops of whatever is proper for the kitchen. This encouraging trial made Mr Bowman extend his view to the fields, where he has followed out the ſame operations which proved ſo ſucceſsful in his kitchen garden. To the articles above mentioned, he now adds moſs; and I have not ſeen any compoſt manure more effectual, eſpecially on graſs. He has lately made a purchaſe of the eſtate of Mongreenan, a more grateful ſoil than that of Aſhgrove, and partly improved by the former proprietor. But, when Mr Bowman ſhall finiſh the improvement of his firſt purchaſe by laying down the whole in good paſture graſs, he will find it an eaſier taſk to complete the improvements of his new purchaſe.

Major Blair of *Blair* lays himſelf out to give comfort and aſſiſtance to all the lower ranks of people in his neighbourhood, particularly to his own tenants. He never takes advantage of a hard leaſe, where the tenant does not thrive upon it, but ſets him free to follow ſome other courſe. He benefits

nefits by this humane practice, having always the beſt tenants to chooſe upon; not only ſo, but he takes pains, by giving good example, to lead on his tenants, by degrees, to do better and better. The farms are incloſed at his expence, and the hedges carefully reared. He is active in the making good roads, and contributes liberally out of his own pocket for carrying on the work. He gives encouraging leaſes on moderate terms, 9 ſhillings or ſo *per* acre is the rent; and he lays down a plan of huſbandry, no leſs profitable to his tenants than to the eſtate. They are taken bound to lay 800 buſhels, Wincheſter meaſure, of powdered lime on each acre of what has been in graſs five or ſix years before, ſufficient for a ſoil between light and heavy, wet and dry. The firſt crop is oats, always good. The next peaſe, beans, or bear, to which dung is given. The third and laſt is oats with graſs-ſeeds. This rotation is imperfect for want of ſummer fallow, or drilled crops of broad-leaved plants. But the Major will not be long of introducing theſe. He leads the example himſelf; and I obſerve ſeveral tenants near the village of Dalry

that

that are imitating him; none to ſuch perfection as the Reverend Mr Fullerton. Would the tenants of his pariſh take a leſſon from him, they might profit greatly, both in their ſpiritual and temporal affairs.

On this extenſive eſtate, many plantations have been raiſed, and are ſtill raiſing by our improver. Clumps he approves of moſt; and every hillock is covered with trees. Theſe additions to the old planting give ſhelter and ornament to this corner, naturally bleak and bare, and in time will be of great value. There are no fewer than 4000 acres incloſed.

Major Blair has been ſo much engaged in the improvements mentioned, as ſcarce to have thought of improving the breed of his ſheep, though he has a very large ſtock. Salving, in particular, goes on in the old abſurd way, much tar and little greaſe. This improvement is a reſerve for the Major; and when he ſets his heart upon it, he will find it turn to great account.

This is a populous country; and the villages of Dalry, Beath, Kilwinning, are in a flouriſhing ſtate, chiefly by the manufacture of ſilk gauze, and other branches they

they have got from Paiſley. Irvine and Saltcoats, ſeaport-towns, are increaſing in numbers, as well as Greenock. Every production of land finds a ready market; and though, by improvements in huſbandry, more corn and fleſh meat are produced than formerly, yet not near ſufficient for the increaſe of population. How encouraging is this to farmers! He muſt be a drone indeed, who is not rouſed by it. With reſpect to the village of Dalry, I was informed, that, 30 years ago, it was a rarity if a ſingle cow was killed in a whole year; and it was thought great luxury to purchaſe part of it. Now, above a hundred beeves are conſumed yearly. But this great increaſe of manufactures is attended with one inconveniency, namely, high wages of labourers, a ſhilling a-day in ſummer, and tenpence in winter. But let not the farmer be diſcouraged. Even in the growing ſtate of manufactures, he profits more by a ready market at home, than he loſes by high wages. And when manufactures become ſtationary, as ſoon or late they muſt do in every country, they furniſh more labourers to huſbandry than

than they took from it in their low eſtate. Huſbandry and manufactures are intimate friends, and, in the main, ſort well together.

I paſſed along the vale of *Rayholm*, an extenſive field of rich ſoil. The grain upon it is indeed good; but as for graſs, I never ſaw worſe. The tenants take crops of white corn till the land will bear no more; and then abandon it, to find a clothing for itſelf, thiſtles commonly, and other unprofitable weeds. It vexed me to ſee Lord Glaſgow's fine land in ſuch wretched order.

There are many ſmall feuers hereabout, dozing away their time without doing any thing. Give an induſtrious man a feu, and he will work wonders. Give an idle man a feu, and it will encourage him to be ſtill more idle. And ſuch as men are, ſuch will be their children.

The ſhire of Ayr is perhaps of all in Scotland the moſt difficult to be ſubdued, a rainy climate, and a ſtubborn ſoil on a till bottom. Yet there are found, as mentioned in my reports, men of ſpirit and enterpriſe,

enterpriſe, who have attempted this arduous work, and been thoroughly ſucceſsful in the only plan that is fit for this country, little corn, but much graſs, with a proportion of roots and broad-leaved plants. Theſe are the true patriots, that have no occaſion for a maſk; and they will prove a great bleſſing to their country, if they can engage others to follow their example. Intereſt will do much, if people can once be brought to underſtand it; and, if the plan mentioned become univerſal in Ayrſhire, it will turn from the loweſt ſtate of huſbandry to the higheſt.

DUMBARTONSHIRE.

IN paſſing, I cannot omit the pleaſure I had from a ſight of the noble city of Glaſgow. The genius and enterpriſe of the citizens in manufactures and trade, have

have raiſed that city to a high degree of proſperity; but it belongs more to the preſent ſurvey to mention the influence of this town upon agriculture all around; not a ſingle field left uncultivated, formerly little better than a deſert. Rent of land is advanced to three or four pounds *per* acre, which, within the memory of man, did not amount to the fourth part of that ſum; numerous villas raiſed, with neat improved fields; and the whole proſpect round has a ſmiling appearance. It is unneceſſary to be particular, as the mode of improvement is pretty much the ſame as about other great towns, ſome of which I had formerly occaſion to mention.

Mr *Oſwald* of *Scotchtown*, formerly in trade, has turned his thoughts entirely to a country life, and to the improvement of his land. His eſtate is pleaſantly ſituated on the river Clyde, about ſix Engliſh miles below Glaſgow; and no proſpect can be more entertaining, the veſſels continually moving up and down the river. The ſoil is variable from wet to dry, but in general a till bottom. Powdered lime is procured

red here at tenpence *per* boll. Mr Oſwald's practice was to ſpread it on the ſward, 400 buſhels *per* acre; oats the firſt crop, peaſe the ſecond, and then barley with graſs-ſeeds. But Mr Oſwald has of late introduced wheat into his rotation, for which the ground is prepared by a fallow, dunged and limed; next peaſe, then barley and graſs-ſeeds, an approved method for obtaining good graſs. To excite his tenants to improve their culture, he gives them lime yearly, in proportion to their quantity of fallow, the profit of which will probably lead them to a better practice than what is common; eſpecially as, by means of the river, they can bring dung from Glaſgow at a moderate expence. William Wilſon and Robert Macnair ſhow a good example to the other tenants. Their ſummer fallow was tolerably well done, their peaſe and beans good; and I ſaw alſo ſome turnip not amiſs. The rent of the ground neareſt Glaſgow is from L. 2 to L. 3 Sterling *per* acre; lower down the river, from 15 s. to 20 s.

Paterſon and *Broke*, tenants to Mr Hamilton of Barns, have their fields in better order than any I have yet ſeen on the Clyde; corn crop excellent, turnip and potatoes in drills neatly dreſſed, and graſs fields in good order. The rent about 12 s. *per* acre.

Upon the land towards the hills of Kilpatrick, fallow and lime for wheat has been lately introduced with ſucceſs. For wheat there is a ready market; and the practice will ſoon become general.

Sir Archibald Edmondſtone, a ſpirited improver, leads the way in that part of the country. He has been chiefly employed hitherto in incloſing with ditch and hedge, which are done in a maſterly manner, the hedges, in particular, are kept perfectly clean. Such of the fields as have been undertaken are well dreſſed. More I cannot ſay; for improvements are here but in their infancy.

Provoſt Donald has erected a neat villa on a riſing ground, towards the hills of Kilpatrick, wild and uncultivated. But this

this gentleman has given it a new face, by incloſing and ſmoothing the ſurface. Several of the incloſures make a good figure, the corn and graſs in them is good, and the higher fields begin to ſhow a ſkilful hand. In ſhort, Mr Donald ſhows by what he has done, that he poſſeſſes the ſinews of improvement, as well as the ſpirit.

Garſcab, the ſeat of Mr *Campbell* of *Succoth*, clerk of ſeſſion, is by that intelligent gentleman converted, from being the ugglieſt ſpot in all that country, to be one of the fineſt. He has ſeized every beauty that can be afforded by the river Kelvin, formerly ſcarce ſeen from any window of the houſe. As Mr Campbell's buſineſs very little coincides with that of agriculture, and leads him to paſs moſt of his time in Edinburgh, he has prudently declined the entering deep into farming. Beauty and ornament are his chief objects; but he ſo far enters into huſbandry, as to think juſtly, that poliſhed fields and incloſures make the chief beauty of a gentleman's country-ſeat. The fields, accordingly, ſurrounding his houſe, are laid down

down with taſte; and he gives peculiar attention to the incloſing with hedge and ditch, which he is extending further and further every year, and no incloſures can be in better order.

It is moving down a ſmooth ſtream with pleaſure, to deſcend from the father to the ſon. Mr *Ilay Campbell* advocate, proprietor of *Dunnotar*, eldeſt ſon to the gentleman now mentioned, ſignaliſes his induſtry in improving his eſtate, and encouraging his tenants to advance their own intereſt by proper culture. He incloſes his lands with ſtone fences, and ſubdivides with ditch and hedge. He has built to his tenants commodious ſteadings; and they deſerve encouragement, as they lay out their money without ſcruple upon improvements. Here again I have an opportunity to obſerve, that both father and ſon were bred to buſineſs, and that ſuch men ſucceed in every undertaking.

About *Dumbarton* there is nothing worthy of remark but a glaſs-work juſt commenced, which bids fair for ſucceſs. Labouring

bouring wages hereabouts run high, tho' the country is populous; L. 6 : 10 : 0 to thoſe who are hired by the year with maintenance; the wages of a day-labourer 11d. or 12 d.; yet oat-meal is only 11 d. the peck, eight pounds Dutch; beef and mutton more plentiful than formerly, though the price is lower. But this is a manufacturing country, which takes many hands from the plough.

Mr *Graham* of *Gartmore*, who has lately ſucceeded to the eſtate, is well entitled to it by his induſtry and application to huſbandry. He has indeed a very improveable ſubject to excite his induſtry. He has completed the incloſures that formerly were not in good order; has made new incloſures, and is in the courſe of opening the old graſs-fields, dreſſing and manuring them, in order to be laid down with proper graſſes; and his plan is, to undertake thoſe parts of the eſtate that lie higher, and never have been under any proper mode of culture.

A new genteel houſe and offices, a number of incloſures ditched and hedged, with rails to guard the quicks, the ditches neatly done up, the hedges thriving, and the incloſed grounds well dreſſed, invited me to call for the gentleman who had done all this. I found it to be Mr *Brock* of *Ardardan*. Four years ago, theſe lands were in a wretched ſtate, wore out to poverty by perpetual cropping without manure. At this critical time, our ſpirited improver commenced his operations. Beſide what is mentioned above, he found ſtrips of planting neceſſary for ſhelter. For, though the ground lies low on the ſide of the river Clyde, which is here a ſea, yet heavy blaſts of wind give great annoyance. The ſoil is dry, but in ſeveral places a till bottom. Where the bottom is free, this gentleman takes turnip and other green crops, and is at more than ordinary pains to collect dung; he makes the land perfectly clean, and then finiſhes with barley and graſs-ſeeds. When a field is once laid down in good paſture, he reckons it gained, and purpoſes to continue it ſo for years. The fields that have a till bottom are ſummer fallowed,

fallowed, well limed, and what dung can be ſpared from the green crops is laid upon the pooreſt ſpots. Wheat is ſeldom taken; he prefers barley, which is a ſtranger in theſe parts, and with the barley he ſows graſs-ſeeds. By this rapid progreſs, Mr Brock has got every field laid down in graſs, and I may ſafely add, in rich order. As ſuch improvements are new here, this ſpirited improver was ridiculed by all his neighbours. Some were ſo free as to tell him that ſo much ploughing and harrowing would ſlay his ground. But he perſiſted, and has taught them a leſſon, that much ploughing and harrowing, inſtead of ſlaying, will enliven ground.

Mr Brock began with 12 pounds red clover, and three buſhels ryegraſs, truſting to the land for other graſs plants. He intends now to add white and yellow clover with ribwort, to procure a thick ſward at once. I adviſed him to withhold at leaſt one buſhel of ryegraſs.

By feeding horſes and cows in the houſe with red clover during ſummer, and with turnip during winter, the dunghill is mightily increaſed. The hay crops, which now

riſe

riſe to more than 200 ſtone *per* acre, give a good price at Greenock on the other ſide of the river. The purchaſer carries it off in a boat without giving any trouble. This encourages hay crops, which at the ſame time are more proper for a rainy climate than corn.

Potatoes thrive exceedingly in this ground, probably becauſe it never carried potatoes before. Mr Brock's method is ſingular. He plants them in rows, three feet aſunder, dunged and horſe-hoed. Next year he plants them in the middle of the intervals without dung, but with frequent ploughing. His reaſon for taking potatoes two years ſucceſſively is the great demand for them. He drew L. 12 Sterling *per* acre, the purchaſer being at the expence of taking them up.

I cloſe this gentleman's operations with a comparative trial he made between dung and ſea-ſhells. The ſhells laſted longer. He proportioned them equally to the beſt of his ſkill. The firſt crop was oats, the ſecond barley and graſs ſeeds, the laſt hay; and the advantage that ſhells had over the dung was viſible in the foggage.

Ardin-

Ardincaple, the ſeat of *Lord Fredrick Campbell*, is agreeably ſituated a little way from the ſhore. Newport-Glaſgow is oppoſite upon the other ſide of Clyde, Greenock a little lower down the river, with many other objects on that ſide, afford a pleaſing proſpect. His Lordſhip's embelliſhments are many and beautiful; but his operations are not confined to theſe. He has made ſubſtantial improvements on his eſtate; and, by ſkill and aſſiduity, has ſucceeded in meliorating a ſoil that appeared incapable of melioration. I inſtance his plantations upon hilly ground, which, from its poverty and expoſure, ſeemed incapable of bearing trees; yet, by his Lordſhip's care and attention, theſe plantations are thriving admirably. I ſhall mention but one other improvement that is highly ſubſtantial. There is a large field not far from the ſhore, which originally was not worth ſixpence *per* acre, moſſy in the ſurface, a foot deep in many places, wet, and ſo flat as to afford little or no level. To obtain a principal drain, it was neceſſary to cut a hard rock 12 feet deep in ſome parts, and continuing the whole length of the

drain. I cannot convey a better idea of this ſtupendous work than to mention the ſum laid out upon upholding the inſtruments employed, which was above L. 100 Sterling. I ſhould not venture to relate this fact, had it not been conveyed to me by undoubted authority. But this was not all. In the wetteſt places they were obliged to cut croſs drains ſo deep as to reach the rock, to line them on both ſides with ſtone, and to cover them with flat ſtones. Where the ground is more firm, croſs drains in the ordinary way were found ſufficient. The labour was rewarded with ſucceſs; for, in a year or ſo, the whole field became ſo dry, as to admit ſpade-work. Numerous were the great oak ſtumps that were dragged out. One oak tree, in particular, was 60 feet in length. The ground being cleared of all theſe impediments, the ſurface was levelled with ſpades to prepare it for the plough. Next ſucceeded pairing and burning the ſurface which was not broke by the ſpade. The aſhes being ſpread, the firſt crop was potatoes. Two crops of oats followed, and then turnip broadcaſt after the ground was well prepared by the

plough.

plough. The laſt crop was bear and graſs-ſeeds, which proſpered, and was paſtured ſeveral years by light cattle and ſheep. It is now in the ſecond round of cropping, viz. turnip and potatoes broadcaſt with dung, and well hand-hoed, oats and bear, all good. To prepare for a graſs crop, a great quantity of rich clay under the ſand on the ſhore, dug when the ſea ebbs, ſand, lime, and ſea-weed, are mixed, and frequently turned over, which cannot fail to be an excellent compoſt for ſuch a ſoil.

This nobleman is indefatigable. A track of ground that had once carried oaks was cleared of the ſtumps. Seedling oaks, thinly ſcattered over the field, were carefully preſerved, the ſurface ſmoothed, a crop of potatoes taken, white clover and ryegraſs ſown, which appear well. The ſeedling oaks, being now relieved of the old ſtumps and other ſtuff, ruſh up vigorouſly, and in 20 years will make a beautiful appearance in the middle of fine paſture land. And to ſhow the goodneſs of the paſture upon the improved lands, Highland cows and ſtots carry four ſtone of tallow.

Lord

Lord Fredrick has avoided ſheep of the large kind, but is fond of ſheep bred about Peebles, which improve here greatly, both in weight and wool. They weigh 15 pounds Dutch the quarter, and the wool becomes finer, giving 10 s. the ſtone, even without waſhing; add to theſe particulars, that the mutton is excellent.

Roſeneath is a peninſula formed by Gairloch and Lochlong, two arms of the ſea communicating with the firth of Clyde, the former piercing five miles into the land, the other ten. This peninſula is above a mile broad, high in the middle, and ſhelving gradually to the ſhore on both ſides. Near the ſhore the ground is dry, and in that wet climate extremely proper for graſs. The preſent Duke of Argyle has planted trees of every kind for uſe or ornament. The evergreen oak, New England pine, American white ſpruce, Virginian red cedar, and larix, thrive to admiration. His Grace has of late extended his plantations to the higher grounds, ſome in ſtrips for ſhelter, and ſome in clumps on the higheſt grounds. This is a bold attempt

tempt in expoſed land and barren ſoil; but care and induſtry have ſubdued every obſtruction, and theſe trees are now beginning to thrive. The fields are incloſed with thorn hedges where the ſoil is good, and they grow vigorouſly. In the poorer ſoil, ſtone fences are made. The whole is now in good graſs, the bulk of which was formerly heath. In the low dry ground a formidable enemy ſoon ſtarted up, and that was fog, difficult to be overcome. A plough was invented with three coulters, ten inches aſunder, in order to ſcratch or ſcarify the ſward lightly. And to keep it ſteady in its proper depth, three wheels were added, two behind and one at the end of the beam. The land prepared by this plough was covered with a rich earth, mixed with lime, which filled the ruts, and was immediately rolled. It anſwered expectation. It was done early in the ſpring, and produced a luxuriant crop of hay. The operation was performed three years ago, and no fog has ſince appeared.

The fields near the ſhore are ſprinkled over with ſea water, beginning the laſt week of April, and continuing till the end of May, with an interval of a fortnight between

tween each watering; watering alſo in June in a dry ſeaſon. A large caſk of ſea water, into which is inſerted a ſtroop like that in a garden watering-pan, is ſlowly drawn over the field in a cart. Even the firſt year the effect was viſible, and when repeated another year or two, it deſtroyed the fog, and improved the quality of the graſs.

His Grace, attentive to the good of his country, is attempting to improve the breed of his ſheep. This requires time. But if he ſucceed, which is probable, the benefit to the ſhire of Argyle will be great. He is alſo intent on improving the breed of draught horſes, which in this country are well made, but ſmall. He gets ſtallions from England, and has great reaſon to expect that their progeny will anſwer the purpoſe. Neither are the horned cattle neglected. Bulls and cows are got from Galloway, the weſt Highlands, and from Holderneſs, in order for croſſing.

As little or no ſnow lies in Argyleſhire, being every where near the ſea, it is expected that, upon improving the breed of ſheep, excellent wool may be produced, eſpecially as the hills there are covered with

with good paſture graſs to the very top. For that reaſon, his Grace is ſolicitous to eſtabliſh ſuch branches of the woollen manufacture as the wool in the country is the beſt fitted for. He has begun a branch at Inverary, and ſpares no coſt to get good hands. He has great hopes of ſucceſs, and it cannot well fail to ſucceed under his direction.

Mr *Campbell* leaſes from the Duke of Argyle the lands of *Clochars* in this peninſula. The ground on the ſhore of Lochgair is dry, and free from a till bottom, an excellent ſoil for Mr Campbell's plan of huſbandry. Firſt, potatoes in drills, dunged in the rows, and hoed carefully; from 33 pecks on two acres, the product 120 bolls Linlithgow meaſure, very well atteſted. A ſpring ploughing given to prepare for barley and graſs-ſeeds; both anſwered expectation. Horſes, hogs, and milk cows, are fed on potatoes, which increaſe the quantity of milk, without giving any bad taſte. Two crops of hay being taken in two years, two crops of oats follow; then turnip with dung, hoed, &c. The laſt, a crop of barley with graſs-ſeeds.

After

After the hay crops, moſs has been applied as manure inſtead of dung. It is put on the ſward in September, thrice the quantity of dung, which has anſwered well.

Mr Campbell gets lime-ſtone from Ireland, which produces very ſtrong lime. Coal is brought from Glaſgow to burn it. The coſt is from 10 s. to 11 s. *per* chaldron. He uſes compoſt dunghills, lime and earth mixed. The bulk pleaſes the eye; but I doubt whether they would not do as well laid on ſeparate.

The higher parts of this farm are proper only for a ſheep walk. Mr Campbell tried to mend the breed by an Engliſh ram, choſen out of the largeſt kind. The offspring, now four years old, riſe to a larger ſize, and carry more wool; but they do not fatten, nor keep their fleſh ſo well as the country breed. He now gets rams from any flock of reputation in Scotland bred in high ground; and this croſs breed anſwers better.

I proceeded to *Leven-ſide*, and ſurveyed *Lord Stonefield*'s improvements there. Unluckily for me his Lordſhip was from home,

home, and I was diſappointed of getting a true and ſatisfactory account of his proceedings. With reſpect to his farm operations, I can only ſay in general, that I ſaw ſeveral fields of good grain. The houſe is beautifully ſituated on the river Leven, and every ſhelving bank towards the river is planted with a variety of trees. What adds greatly to the beauty of the place, many large ſpreading oaks grow ſingly here and there in the plain.

The ſheep paſture is fine, which has led his Lordſhip to think of improving the breed. He has got a ram from the Duke of Argyle, a complete one; but whether of Bakewell's or Cully's breed I was not informed, which ſeems extremely proper to raiſe the breed with a flock of ewes belonging to his Lordſhip, the beſt I have ſeen in that country. A ſecond or third croſs will, I think, produce a hardy breed for the hills of Argyleſhire. The young ſtock of horſes are bred from well choſen mares and a ſtallion of full blood, from the Duke of Argyle. A ſtrong colt, cream coloured, drew my attention. He is out of a ſmall mare, well ſhaped, of the low-

land breed, but from what ſtallion I could not learn. This colt is of the true breed for a hilly country. He is completely made up, abundance of bone, and full of activity.

The higher arable ground, though on a declivity, is full of wet ſpouty parts, which are now drained with addreſs. Drains are opened in every direction. Stones are ſet at bottom, meeting at top like a couple for a houſe. To keep them firm in that poſition, ſmall ſtones are laid at the back and over them. Turf or ſtraw is laid above, and what remains of the drain is filled with earth. So dry was the land made, as to produce good crops of potatoes, cabbage, and turnip.

The ſhelter and foggage are here ſo good as to draw from butchers 15 s. *per* head of black cattle, from Martinmas till the firſt of April, with the addition only of a little coarſe hay in hard weather.

Horſes are fed with potatoes inſtead of corn, a peck daily to each, with hay. With this food, and the addition of a little corn when they are wrought hard, they do well, and thrive exceedingly.

The

The practice is to prepare for graſs-ſeeds by a broad-leafed crop well hoed, 10 pounds red clover, 10 pounds white, and 2 buſhels ryegraſs on an acre. After lying five or ſix years in paſture, two crops of oats are taken, turnip with dung, bear and graſs-ſeeds. The crops are commonly ſold on the foot from L. 6 to L. 8 Sterling *per* acre, a very encouraging price. And, to ſupply the want of dung, every thing is gathered with care that can rot; ſprats, ruſhes, fern, are uſed for litter to the horſes and cows. But ſtill the quantity is inadequate to the ſtraw robbed from the ground, by ſelling the crop on the foot. I muſt therefore take the liberty of condemning his Lordſhip's practice in this inſtance, and hope it will be given up entirely.

A field was ſowed, partly with foreign lintſeed, partly with what grew at home. I could ſee no difference, but that the former was ſooner ripe.

Lord Stonefield enters warmly into every plan that can raiſe a ſpirit of induſtry among his tenants. In particular, he gives a premium of a guinea to each tenant

nant for one acre they crop with turnip, potatoes, or cabbage. This is very proper to begin with; but, after his tenants are fairly initiated, it will have a better effect to raiſe emulation among them by ſmall premiums for the beſt crops; and theſe premiums ought to be inſtruments of huſbandry of the beſt kinds.

All the trees intended for the high grounds are raiſed in a nurſery of a cold expoſed ſoil. They thrive well; their early acquaintance with cold is given as the cauſe; and probably not without reaſon.

Lord Stonefield has the ſatisfaction to ſee his operations imitated by ſeveral gentlemen and tenants in the neighbourhood; and probably this part of the country, under his Lordſhip's patronage and example, will ſoon wear a new face.

I next bent my courſe to Buchanan and Stirling. Improvements dwindle gradually away. Along the ſide of Enrick water the ſoil is exceedingly good, and capable of high improvement; but there is no ſpirit here for enterpriſe. I called for

Mr

Mr Buchanan at Catter: The agreeable appearance of his fields made me wiſh to ſee him. He is an eminent merchant in Glaſgow. Though I miſſed him, I muſt give him joy as the father of improvements in this ſide of the country. Incloſing, planting, liming, and other ſubſtantial improvements, are carried on by him with taſte and ſucceſs. And here I finiſh my ſurvey with an enlivening ſcene.

Thouſands have heard of Mr *Glaſsford*'s great genius and abilities for trade, and of his high character in the commercial world; but his reputation as a gentleman improver has not been much heard of, although more real and ſubſtantial improvements are made upon his eſtate at Netherwood, than ever was performed by any in that part of the country. Five years ago, ſuch was the ſtate of the ground, that no crop it produced, either of graſs or corn, was equal to the expence and rent. Heath, and the worſt kind of weeds, abounded, the native production of wet muiriſh ground when ill cultivated. This gentleman has been long accuſtomed to lay out his money freely

freely on bold adventures in trade. The great ſucceſs he had therein, qualified him for undertaking boldly to reclaim this untoward ſoil from a natural bad ſtate, and ſuch of it as the ignorance of tenants had ſpoilt by ill management. A ſhort ſtate of his operations, and the ſucceſs following, will be inſtructing.

Encloſing by ditch and hedge thoſe parts of the land that were capable to rear a fence of thorns, was well done, and the hedges are growing vigorouſly, they being kept clean, and the ditches ſcoured regularly. The plan of incloſing and fencing the other ground of worſe ſoil, and full of large ſtones, is by clearing the ſtones out, and turning the beſt of them into walls ſufficient for fencing. The ſmaller are buried in under-drains, or carried to make good roads.

The ground deſcribed above, Mr Glaſsford knew well, was not to be improven by mere culture only, and incloſing, even although it were the very beſt. It ſtood in need of manure, and that muſt be got, and a great abundance of it too. He accordingly laid hold of the fortunate circumſtance

cumſtance of the canal lately cut to Glaſgow, and made a ſmall one for himſelf, which communicates with the great canal, by which dung in abundance is brought from Glaſgow, water-borne, to Netherwood. There is good lime-rock in the ground, which is burnt into lime; and, by a proper uſe of theſe two capital manures, liberally beſtowed, aided by good tillage, conducted by an expert hand from Eaſt Lothian, and the other modes of culture very properly applied, many fields are now like gardens.

Five years are now but run, when wheat, barley, oats, hay, and paſture, are growing luxuriantly, where heath, thiſtles, and other noxious weeds, formerly covered the face of the earth. How delightful the change! If his neighbours be not captivated by it, they deſerve not to live.

Turnip on a large field, about which I muſt not diſguiſe. The land appears to be prepared by frequent ploughings. But the ſoil is of too ſpongy and wet a nature for turnip, particularly in a ſeaſon that is rainy like this, which prevents the ſoil from taking on good tilth; accordingly,

ſtrong

ſtrong appearances thereof are in the ſtate of the culture on this field; and although much dung was given to it, yet the turnips are weak, poor, and ſickly, and will not be of any value, either for ſheep or horned cattle. But a little experience will ſoon teach our obſerving improver to avoid that which is adverſe to the culture of the ſoil, and cropping of it in future.

I was charmed with the ſight of ten oxen, that were in the yoke, and labour either in plough or wain every day. On account of the fine order they are in, their ſize and fine ſhape, all half breed with the Holderneſs kind, I could not be ſatisfied as to them, without inquiring from whence they ſprang. I was told at Glammis. Mr Glaſsford, ſparing no coſt to procure the beſt things, ſent there to purchaſe at the roup of the late deceaſed Earl of Strathmore's very capital breed of horned cattle. This is a notable inſtance of our improver's high ideas concerning oxen, and their excellency for the labouring of a farm. I wiſh all around him to imitate the example.

A court of offices is building, that will contain every conveniency for a large farm; and the dwelling-houſe, when it is finiſhed, will be neat and commodious.

Here is a very conſiderable improvement made upon a barren and deſert-like part of the country, in the ſhort ſpace of five years; a pleaſing indication that the ſame enterpriſing ſpirit for deſpatch will, in a few years longer, make a thorough improvement on all the other parts of this eſtate, and thereby raiſe a noble emulation among the gentlemen and farmers around.

Having no previous information of the improvements here, it was accidental that I diſcovered the place; and, as Mr Glaſsford was not preſent, I could not learn particulars. I gave him the trouble of a letter, containing queries reſpecting his modes of huſbandry, application of manure, and quantity thereof on an acre. He favoured me with the following letter in return, which I give to the public for further information.

SIR, *Dougalſtoun, Sept.* 12. 1778.

"I received your's of the 7th, and, in anſwer to the queries there put, the quantity of lime given to the acre at Netherwood has been from four to five chalders of ſhells, which, by the common computation of one chalder ſhells being equal to two chalders of ſlacked lime, would make from 8 to 10 chalders of ſlacked or powdered lime, but in fact is equal to about 11 to 14 chalders of ſlacked lime to the acre; becauſe, although lime in ſhells renders in general about two for one, yet the limeſtone which I have at Netherwood, like that of Lord Elphinſton's at Cumbernauld, is ſo very good as to produce fully 22 bolls of powdered lime (in place of the common computation of a chalder) from 8 bolls of ſhells. No doubt you know that ſcarcely any limeſtone, if any at all, is perfectly free of ſand or other mixture which is not pure lime. This which I have at Netherwood, has been found upon trial to contain 25 parts out of 26 of pure lime, having only one twenty-ſixth part of ſand in it. Therefore I reckon as above, that, by giving 4 or 5 chalders of ſhells

ſhells to the acre, I give what, by common computation of ſhells producing double, is equal to from 11 to 14 chalders *per* acre, I mean the Scotch acre.

"As for the meaſure, it is larger than that of four Wincheſter buſhels for a boll, but how much larger I cannot exactly ſay; and the meaſure at filling is heaped; but, when the dimenſions of the carts or lighters that carry it away are known, theſe are filled without any other meaſuring. The ridges were ſo very high in the ſtate they were when I purchaſed, that it coſt me a great deal of expence to reduce them to their preſent ſtate. This great height of all the ridges making it neceſſary to reduce them, it would have been very improper to have given any of the fields lime on the ſward; the lime was therefore all laid on the fallow; but I intend now to lay lime on the ſward of ſome of the fields before the ſecond breaking up, and have little doubt of its anſwering very well, having made trial of it on ſome fields here, which have given pretty good crops after liming on the ſward.

"I

"I have not given any lime mixed with dung to the farm at Netherwood. What dung has been laid on hath been by itſelf; but I have laid on that farm a good deal of lime mixed with the moſs thrown out of the ſmall cut which I made through part of the low grounds of Netherwood, from the great canal to the lime-kilns, and have found it to anſwer very well, after having been twice mixed and turned, and lying ſo mixed for about a year; and I propoſe to uſe gradually, from year to year, the whole of this moſſy ſtuff, now lying on the banks of this cut, which ſhall be thought fitted for ſuch compoſt.

"Some of the queſtions you put were ſuch as I could eaſily anſwer as above; but others which you have aſked, allowing the ſame to be plain enough to moſt farmers, yet I will not take upon me to give anſwers; for although I have pretty liberally ſupplied the neceſſary means of improvement to any overſeers I have had, yet I know very little myſelf of the proper management of a farm; but I own that I have pleaſure to ſee improvements made, and do not wiſh them to be done in a ſuperficial,

but

but in a ſubſtantial manner; and I am not without hopes that, by the time the improvements at Netherwood are finiſhed, and the young fences and planting got on a little, that it will be a very good farm, eſpecially, too, as I am juſt now building a ſteading on it, near the ſpot where the old one ſtood, which I think will be more complete than any one in that country that I have ſeen; but, as the improvements on this farm are not as yet completed, I think it would be doing too much credit to what is yet done for you to give account of it in your report to the Honourable Commiſſioners, as you propoſed to do. I am," &c.

In the courſe of this ſurvey, I fortunately met with ſeveral ſpirited improvers. Their ſucceſs will, I hope, kindle in others a flame not to be extinguiſhed till improvements in huſbandry be carried to their utmoſt height. Much is done, but much more remains to be done. Knowledge in huſbandry will ſpread with the practice; and in time we may come to rival Flanders or England. The proſpect is pleaſing,

and

and we have no reaſon to deſpair of ſucceſs. Every thing conſpires to animate us, our own intereſt, as well as that of our country.

One word more upon horned cattle and ſheep. I warmly recommend to every farmer in the high parts of this country to ſtand out againſt the temptation of raiſing the ſize of either above the paſture. Let their emulation be to improve the figure of the animal, and not the ſize, and always to keep them in good condition by plenty of food, which is the ſure road to profit as well as pleaſure. Over-cropping is not more ruinous to land, than overſtocking to cattle.

RENFREWSHIRE.

THIS is a populous county. Greenock and Port-Glaſgow are full of inhabitants, beſide a conſtant reſort of ſailors from

from all quarters. Paiſley, famous for its manufactures, is increaſing in numbers daily. Hence a vaſt demand for every thing the ground can produce, beef as well corn. The encouragement for farming is great; and yet there are two obſtacles to the improvement of the land, that will not be ſoon or eaſily overcome. One is, high wages for labouring ſervants, 12 d. and 14 d. *per* day to very ordinary hands, and 16 d. to the better ſort. Even at theſe wages labourers are ſcarce. This is occaſioned by the great encouragement that is given to manufactures, in many inſtances from 2 s. 6 d. to 4 s. *per* day. The other is a mean, miſerable tenantry, ſatisfied with bare ſubſiſtence, and unwilling to do better, for fear of having the rents raiſed on them. What can gentlemen proprietors do in ſuch a caſe? They may well improve their own little farm, but will find it a difficult taſk to reform their tenants, and to make them act againſt inveterate cuſtom, which is a ſecond nature. I can diſcover no remedy but patience. When the manufactures of this county have arrived at their height, many rich men will retire from

from buſineſs to the country, and amuſe themſelves with improvements; and if they once enter fairly into that plan, money and induſtry will produce wonderful effects. It is by that means that the moſt obdurate ſoil in the world lying about Aberdeen has been improved to the higheſt perfection. The country about Glaſgow is daily improving by the ſame means; and by the ſame means Renfrewſhire will in time become a fine country.

I now proceed to particulars. Mr *M'Dowall* of *Caſtleſemple* has embelliſhed all the riſing grounds about him with clumps of trees. Nor has he neglected a ſingle glen or bank to which the plough has no acceſs. This will in time be a great benefit to his country, as well as to his family. This gentleman does not enter more deeply into tillage than what is neceſſary for graſs-ſeeds, in order to procure good paſture. Providence has placed under this rainy climate a ſoil extremely proper for graſs, and for the moſt part incapable of being poached. Incloſing goes on briſkly, ditch and hedge on good ſoil, and dry-

ſtone

ſtone dikes on the remainder, made immediately fencible by a pailing protecting the young thorns. Strips of planting on the ſkirts of the high ground, will be a great ſhelter from the cold winds.

Mr M'Dowall has a large flock of ſheep. Anxious to improve the breed, he procured ſome of Mr Cullie's kind from Northumberland, with a herd of that country to take care of them, whoſe ſkill and attention is well ſpoken of. Theſe ſheep have good paſture ſummer and winter, nor is turnip with-held. Yet they do not thrive. They are not able to endure the cold and ſtorms of this climate, nor the late ſpringing of the graſs. Their wool leſſens yearly, which indeed in ſome meaſure may be owing to the want of ſalving. This trial is a fair one, and ſhould be a monitor to others in this country to avoid ſheep of ſuch delicacy and ſize. Mr M'Dowall has profited by experience. His plan now is to propagate a mixed breed of a middle ſize, that will keep warm in his incloſures, and thrive on his graſs. And this may prove a leading card to others in his county.

I was led to ſee 18 or 19 red deer in a ſmall field of ſeven acres, incloſed with a high ſtone wall. Whether moſt to admire the ſtatelineſs of the animals, and their high condition, or the rich paſture, I was at a loſs. As this little incloſure was all they had to feed on ſummer and winter, and high ground too, a ſtronger inſtance cannot be given of fertility of ſoil. A loch of 500 acres, called Lochwinnoch, is within ſight of the houſe, diſtant about a quarter of a mile, an agreeable object in the heat of ſummer, but chilling in a cold winter. The ſoil is of a good quality, and, were the lake thoroughly drained, would afford a rent of L. 500 Sterling yearly, being a public benefit, conſidering what the ground would produce in corn or graſs. The difficulty was great, as a level could not be found but by a drain ſeveral miles long. He carried a canal, both wide and deep, up to the loch, which drained many acres; and, as the water ſubſided, the canal was advanced into the loch, which carried off ſo much more water. But, after beſtowing about L. 5000 Sterling, the canal is found too ſhallow to drain the loch completely.

completely. The land, however, that is gained, will do more than defray that expence; and he has gained, beſides, a very great embelliſhment, namely the canal, which is the fineſt ſerpentine river in Britain, of ſeveral miles in length, cut by a private gentleman, entirely at his own expence. At the ſame time, the earth removed to make the canal is of the very fineſt ſoil, which, if ſpread on both ſides, and mixed with the original ſoil, would be an excellent preparation for a ſhrubbry, and for trees of the fineſt kind. A coach road through the ſhrubbry, with bridges of communication, would make a delightful airing. Would a gentleman of an opulent fortune grudge the half of L. 5000, or even the whole, upon ſo fine a work? Many greater ſums are daily expended in England upon embelliſhments far inferior. But I am deviating into a province that does not belong to me. I return to agriculture. The gained ground is of the fineſt ſoil. Graſs, of the tendereſt kind, grows on it ſpontaneouſly. After a ſummer fallow with a little dung and lime, every crop of corn is good, oats the beſt; graſs-

graſs-ſeeds thrive; and, what is moſt remarkable, graſs riſes early in ſpring. Flax and hemp are mighty crops, and yield great profit. The drained parts, being overflowed in winter, are greatly enriched by the fineſt of the ſoil waſhed down from the hills and depoſited there. The good effects appear in April and May by the verdure of the paſture. Ought not this to tempt tenants in poſſeſſion of high grounds to offer a good rent for that rich and early paſture for their ſheep and cattle in ſpring, that have been ſtarving all winter?

Mr M'Dowall named three of his tenants among the few of that county that can be ſtiled improvers, John Johnſton, John Connel, and John Galbreath; a lucky circumſtance for the landlord, whoſe eſtate is in the courſe of being improved by the example given by theſe tenants to their neighbours.

Lime and coal are in plenty here, and conſequently cheap. Comfortable circumſtances for improvers of land.

Mr

Mr *Houſton* of *Johnſton's fields* are neatly cultivated; turnip on the light ſoil, and fallow on the clay, lime in plenty, and the crops of grain good, the paſture rich. I admired a crop of wheat, that would be ready for cutting in a few days after the 20th of Auguſt, when I ſaw it. I ſurveyed a neat ſet of offices, and a commodious dung-yard. The implements of huſbandry are good, and in fine order. The chain-plough is in great requeſt here. He works it with two horſes, without a driver. The ſtack of hay that was rearing was of a good quality.

I was led to meet with *Robert Roger*, a tenant of Mr Cunningham of Craigan's, who deſervedly bears the name of a farmer, and has more ſpirit than any I have yet ſeen in this county. He farms 220 arable acres, a clay ſoil on a till bottom; and yet pays a pound for each acre. His tack is for 25 years; ſix years longer than is common in this county. The proprietor lays out the money for incloſing, which is by ditch and hedge; and Mr Roger pays five *per cent.* Wood for pailing is furniſhed

niſhed by the landlord, and put up by the tenant. I muſt give him praiſe for the care he takes of the hedges. I have not ſeen many better.

With reſpect to the land: Summer fallow he always begins with from graſs, giving the firſt furrow before winter. He gives two croſs-ploughings in May, neceſſary to divide the ſoil, accompanied with brake harrowing. He makes his ridges 12 feet broad, and always thereafter ploughs furrow and crown alternately. He gives plenty of lime; never leſs on an acre than 12 chalders, often 15, of the beſt powdered lime. Four buſhels, Wincheſter meaſure, make a boll here, and 16 bolls go to the chalder. Fifteen chalder, making 160 bolls Linlithgow barley meaſure, is abundantly ſufficient for this ground. He alſo applies all his dung on the fallow. This is a ſubſtantial mode of management; and the firſt crop, accordingly, which is oats, with graſs ſeeds, is always good. Next, two crops of hay, followed with a few years paſture. When he continues to take a run of corn crops after the firſt from fallow, they fall ſhort of what they ought

to

to be. This I impute to his making crown and furrow alternately, which, in this rainy country, lays the ridges too flat. I endeavoured to explain to him the error, and hope he will think of it. Neither can I approve of his mode of fallowing. When he begins with ploughing ſo early as before winter, the ground, lying untouched till May, is ſo united as to require two ploughings for reducing it into tilth. But, what is worſe, how hazardous is the ſtate of clay land lying ſo long flat in a croſs ploughing, and no furrows cleared to carry off water? No wonder it be ſoured and drowned, and unfit to carry crops.

He employs the chain plough, with two horſes, without a driver. I am glad to find this frugal, yet effectual, mode of tillage, gaining ground yearly, even in remote parts, where huſbandry is ſtill in its infancy.

Mr Cunningham the proprietor, to encourage this enterpriſing tenant, has built him a genteel dwelling-houſe, with a neat ſet of offices; the tenant performing all the carriages; the coſt upwards of L. 390.

Mr

Mr Cunningham cannot fail to have the beſt tenants, when he is ſo liberal to them.

Mr Roger keeps a few milk cows, natives of the country; ſmall, but well ſhaped; about L. 5 value. They give abundance of rich milk, of which profit is made by the advanced price of cheeſe and butter. Ten ſhillings is now the ordinary price of a ſtone of butter, and 3 s. 6 d. to 3 s. for ſkimmed milk cheeſe.

I muſt not leave this part without taking notice of the eſtate of *Milliken*. The fields are all judiciouſly incloſed, the hedges fencible, and the graſs good; the whole done by the late Mr Milliken.

The town of *Paiſley* is a great ſupport to the agriculture of this country. In the laſt thirty years the inhabitants have increaſed from 5000 to 15,000. They draw for ſilk gauzes an immenſe ſum, no leſs than L. 300,000, each of the two preceding years, beſide above L. 100,000 for other articles. Theſe facts I had from Mr Fulton and his ſons, eminent manufacturers. What a conſumpt muſt this town occaſion,

occaſion, of every thing the ſoil can produce!

Mr Spiers, by a ſingular genius for trade, has, with a fair character, acquired an immenſe fortune. And it can with truth be ſaid of him, what is not common in his buſineſs, that, in every article of his commerce, he has ſtudied the intereſt of his country, as well as his own. This gentleman has laid out above L. 100,000 in the purchaſe of land, and yet continues to carry on trade as formerly. A ſpirit of activity will always exert itſelf, whatever way it is directed. Mr Spiers has of late beſtowed great attention upon huſbandry improvements. At his lands of King's Inch, on the ſouth ſide of Clyde, five miles below Glaſgow, Mr Spiers is erecting a fine dwelling-houſe, in the middle of a beautiful plain; the ſoil is a deep rich loam, with a free bottom that allows water to paſs through it eaſily; the ſurface of which, accordingly, is always dry. The only unhappy circumſtance of this ſituation was, that the grounds were liable to be overflowed by the river, which fre-

quently made great holes in it, and carried off much of the earth. This was a diſtreſſing circumſtance; but no difficulty was too great for the reſolution of this gentleman. An embankment is made that now totally excludes the river, and prevents any future encroachments. To reſtore this beautiful plain to an equal ſurface, was his next conſideration, that no deformity ſhould appear from the broken parts in it. Difficulties preſſed upon him, as no hillock, or ſuperfluous earth, could be got, even at a conſiderable diſtance, to fill up the hollowed parts. But Mr Spiers was not diſmayed. He combined ornament with neceſſity; and, not grudging the expence, he cut a canal for a ſheet of water half a mile long, from ſeventy to ninety feet broad at different parts, at a proper diſtance from the houſe, in a ſerpentine direction, which, in ſome meaſure, ſupplies the defect of not ſeeing the river from his houſe. The other embelliſhments, all along the ſides of the canal, of ſhrubbry, gravel, and graſs walks, form a complete piece of ornament. But the great motive that moved him was to procure

cure abundance of earth to fill up the broken unequal parts to the common ſurface, which is done effectually by many thouſand cart loads of earth; and there is not now any unequal ſpot upon the plain, but a ſmooth ſurface, covered with a carpet of fine green paſture. The fields are divided into neat ſquare incloſures, after having received a complete dreſſing, either by fallow, or by drilled crops. Thoſe neareſt the houſe are done with ſunk fences of ſtone; thoſe at a greater diſtance with ditch and hedge. The thorns make a progreſs, and would have made a ſtill greater, had they been ſaved from the garden ſheers. But it is the delight of gardeners to clip cloſe, which may look pretty in a garden, but is very improper for a hedge intended to fence againſt cattle.

As Mr Spiers has much of his time employed in carrying on buſineſs at Glaſgow, he wiſhes to have the ſhorteſt method of finiſhing his huſbandry plan. Every field is thoroughly fallowed. He carries dung from Glaſgow in boats. He ſows graſs-ſeeds, with oats, or barley; takes one or two crops of hay; the ſhorteſt way

way poſſible of bringing his fields into good paſture-graſs, which is his ultimate aim.

Newton, on the other ſide of Paiſley, is another of his purchaſes, very different in ſoil from that mentioned. It is coarſe, wet, and full of ruſhes, and was ſo ill managed before his purchaſe, that the tenant frequently, after all his labour, ſcarce received ſufficient to pay the expence. Mr Spiers has alſo undertaken the reformation of this untoward ſoil. He is ſenſible that his profits can be but ſmall, if any. But he agrees with the famous Dr Swift, in thinking, 'that, whoever can make 'two ears of corn grow, or two blades of 'graſs, where only one grew before, does 'more eſſential ſervice to his country, than 'the whole race of politicians.' After making many drains, clearing the ground of ſtones, and incloſing, he applies the plough, limes plentifully; and the corns, with graſs-ſeeds, grow better then was expected.

Renfrew-

Renfrewſhire made a capital acquiſition when the preſent Lord Blantyre fixed his reſidence at *Erſkine*. His Lordſhip's talents for huſbandry, in every branch, have been fully diſplayed in Eaſt Lothian; and there is no doubt that they will be proſecuted here with vigour, where they are more neceſſary, and will do ſtill more good. I wiſhed to know his plan for a ſoil and climate very different from what he had formerly practiſed upon. As he was from home, I ventured to write him, and he permitted me to enter into my Journal the following very obliging anſwer:

SIR, *Erſkine, Sept.* 24. 1778.

"I have been prevented from anſwering your obliging letter longer than I intended.

"I am ſorry I was from home when you was in this neighbourhood, as it would have given me pleaſure to have ſeen you here, and to have had your opinion and advice as to a proper plan of improvement for this part of Renfrewſhire, where it is very much wanted. I have as yet had too little experience of the ſoil and climate

to

to pretend to form any opinion that ought to be relied on, and both differ ſo very materially from what I was accuſtomed to in Eaſt Lothian, that I find myſelf very often at a loſs; but a little time and attention will, I hope, ſoon make me better acquainted with both.

" The ſoil from Glaſgow to Paiſley, and from that to Inſhinnan, is moſtly clay, and differs very greatly from the ſoil from Glaſgow to Renfrew, and from Renfrew here, which is generally light, with gravel or rock at bottom, and of courſe would require very different management.

" The ſoil upon my eſtate of Erſkine is moſtly light, and in my opinion well adapted for paſture, turnip, and clover, but will not bear long cropping; though, when properly cleaned and manured, it will afford a very rich crop, both of corn and hay, and excellent paſture; for it runs much ſooner to graſs than a clay ſoil. If the tenants hereabout would clean and manure their fields, and take but one or two crops at moſt before they ſow down, they would make much more of their grounds in graſs than in any other ſhape,

as

as they have excellent markets for every thing a farm can produce. Dairy and feeding veals would anſwer well here; with the laſt article this country is very badly ſupplied, and very bad of its kind.

" My eſtate of Cardonald lies between Glaſgow and Paiſley; the ſoil is a ſtrong clay, much like yours at Ormiſtoun; the tenants are better than here, but ſtill much behind other parts of Scotland. I hope your labours ſhall have much good effect with them. I ſhall be happy to ſee your work as ſoon as publiſhed. Nothing gives me ſo great pleaſure as to ſee improvements going on, and my beſt endeavours will not be wanting in this corner. With the little experience I have had for two years, the grounds here, though ſeemingly very poor, have made me very great returns, both in turnips, oats, and hay. I cut five acres in hay this year after turnip and oats, which I weighed; it produced me 1500 ſtones trone weight. If you return to this country, I would be glad to ſee you here. I am," &c.

STIR-

STIRLINGSHIRE.

I Begin with *Buchanan*, an eſtate belonging to the Duke of Montroſe. The low part of it is capable, by improvement, to carry good crops of corn and graſs; and a better ſtock of cattle and ſheep might alſo be raiſed in the hill farms. But that nobleman has loſt his eyeſight, which is a great diſcouragement. He has, however, made extenſive incloſures, all with ſtone walls. Much ground is planted for ſhelter in the form of belts or ſtrips, of a conſiderable breadth in the low grounds, and more ſo in the high. Many of the bleak hill-tops are alſo planted. The expence is great, but the improvement will be in proportion, by the price that theſe trees will draw when grown up, being near water-carriage; and every individual within reach will feel the good effects of having acceſs to timber at a moderate price. His Grace has been particularly attentive

attentive to cover with trees the face of a range of hills called the Weſt end of the Grampians, north-weſt of his houſe. Much labour and expence that undertaking has coſt. Scotch fir, larix, and oak thrive, and are now making a figure. Great pains have been taken to drain many wet ſpots in this eſtate; and now artificial graſſes thrive in many ſpots formerly marſhy.

The Marquis of Graham, in the ſhort time he has reſided here, has been able to raiſe great expectations in every one of his tenants, being a zealous patriot, a kind landlord, and a great improver. It is certainly in his power to raiſe a ſpirit of induſtry and improvement in his extenſive eſtate; and his heart will tell him, if he be not a great deceiver, that he can proſecute no object more ſatisfactory to himſelf than to make his people happy by their induſtry. This would be to connect the public good with his private intereſt in the moſt ſucceſsful manner. This is true patriotiſm, that needs no maſk.

There is a conſtant demand for corn here from the Highlands, carried by the way of Lochlomond. This ought to be

a great ſpur to induſtry in improving tracks of improvable land, eſpecially as lime is within reach. And it certainly will have its effect, when people begin to feel the ſweets of improving land. It requires but two or three induſtrious farmers to take the lead.

Upon taking a view of Lochlomond, it appeared to me that many thouſand acres might be gained by deepening the bed of Leven water, where it iſſues from the loch. I am told that, by this means, the ſurface of the loch may be lowered full ten feet, and that no proprietor would gain ſo much as the Duke of Montroſe.

Great quantities of flax are raiſed here, and manufactured into linen cloth. The women are ſingularly induſtrious, and gain conſiderably by ſpinning linen yarn. Some ſpin wool for clothes to the men.

Buchanan is not altogether deſtitute of improvers in huſbandry. I ſhall name a few. Mr *M'Culloch*, a young man, factor to the Duke, is giving attention to huſbandry. He purſues every method for collecting dung as the chief means of improvement.

provement. I praiſe him for induſtry and willingneſs to take a leſſon. His land, indeed, requires a ſkilful operator, being wet with a till bottom. It is hard, indeed, for a beginner to be ſo circumſtanced; yet open and covered drains, ridges laid in a proper direction, and raiſed to a proper height, will help much to improve the ſoil; and he will not be ſparing of his labour in theſe operations.

Oppoſite to M'Culloch, with regard to the condition of his land, is *William Leckie*, whoſe farm is a loamy ſoil on a free or ſandy bottom. The ground lies prettily, and would ſoon be improved in expert hands. This farmer is uniform in one good practice, which is to keep half of his farm in graſs, a very right proportion in ſo good land. The diſtinction, however, between infield and outfield is continued. When the latter is opened from graſs, two crops of oats and one of bear or barley are taken. He does not even fallow the infield, from which he takes two crops of oats, then peaſe and barley; dung is given to the barley. The crops are weighty,

ty, which indicates the goodneſs of the ſoil. It is ſurpriſing that, in ſo good a ſoil, he never thinks of graſs-ſeeds. Potatoes in drills turn to great account, no fewer than 80 bolls commonly on the acre.

This uncultivated, but not diſagreeable country, is much indebted to the *Lord Chief Baron*, who gives an example of the moſt perfect huſbandry. If the gentlemen and farmers in the neighbourhood be willing to learn, let them reſort to *Killern*, obſerve the incloſures and the culture of the fields, ſummer fallow, artificial graſs, turnip, and oxen only employed in the plough. To what more inſtructive ſchool can they reſort; and how happy would it be for themſelves and for their country to imitate his Lordſhip in every particular? I have good authority to ſay that 800 chalders of ſhell lime were laſt year carried ten miles to the farm. A few ſuch ſpirited improvers would ſoon cover this country with plentiful crops of corn and graſs, and remove the reproach of many fields lying waſte, and yielding nothing.

Innume-

Innumerable are the trees planted by his Lordſhip.

Better ſmall beginnings than none. Paſſing eaſtward, I obſerved three ſolitary heaps of lime, a feu turnip in drills, and a patch of clover in a kail-yard.

Lands adjacent to the high-road, belonging to Mr *Graham* of *Gartmore*, are of a kindly ſoil, capable of high improvement. But finding nothing going on to invite my attention, I proceeded to *Boquhan*. *General Campbell*, the proprietor has made great improvements on this eſtate. Every field is well incloſed with thriving hedges; and the farm offices are complete. The ſoil next to the houſe is a deep loam, with a free bottom. Near the river Forth is a ſtrong coarſe clay, difficult to be ſubdued; and the more difficult, that it is almoſt a dead level, and not eaſily purged of water. The riſing ground on the ſouth is in general a free and deep ſoil, kindly to graſs. The ſoil firſt mentioned having been completely dreſſed, is covered with a ſward of rich graſs. The clay ground got a thorough ſummer fallow, and was perfectly levelled.

levelled. The head and foot ridges had been raiſed to an inconvenient height by the plough turning on them, which was peculiarly hurtful in that ſoil, by retaining every drop of water. By the earth that was taken from theſe ridges, every hollow was raiſed to the level of the field. The ridges were made ſtraight, and rounded properly, ſo that now no water ſtands on the field. Lime-works are wonders here, and the General ſpares it not; 130 bolls powdered lime are reckoned a proper quantity for an acre. Wheat, beans, and barley, are the ſucceſſive crops, graſs-ſeeds being ſown with the barley. The beans get two furrows, and the barley three; a fine preparation for graſs-ſeeds, proved to be ſo by the crop; the general vouches 500 ſtone of hay the firſt year, and 350 the ſecond year, from each acre. The land is then ſurrendered to paſture, which is not limited to any particular time. It is the General's purpoſe to let his farms on leaſe to good tenants. The rent runs from 20 s. to 22 s. 6 d. *per* acre. I proceed to the riſing grounds on the ſouth. Theſe being intended for a

ſheep

ſheep walk, 70 acres are now ſurrounded with a high ſtone wall, partly made with ſtones dug in the field itſelf. It was well dreſſed and limed, and directly ſown with graſs-ſeeds without any corn crop.

Turnip and cabbage have been attempted with ſucceſs, as far as ſkill can go; but the clay ſoil is averſe; and froſt makes great ravages where ſuch ſoil happens to be wet.

The flock of ſheep are made up of different kinds. What are bred in high ground thrive the beſt. I ſaw a proof. Fourteen pounds of tallow were taken out of a ſingle wedder that had been two ſeaſons on this paſture. But the ſheep intended for this ground is a mixed breed, between an Engliſh ram and a ſhort, but well made up ewe bred on heath ground. In this croſs breed the wool improves both in quantity and quality. A bull and cows of the Holderneſs kind are fine; and there are ſome Alderny cows.

I feel an uncommon impulſe upon me to mention the apartments in the houſe lately built by way of addition to the old one; they are elegant; uncommon in the form;

form; the conveniencies many and commodious; the ſhrubbry and garden nicely done up; all forming a group highly pleaſing to the beholder, and convey a ſtriking conviction of the General's peculiarity of genius and fine taſte.

It is not more than 16 years ſince Mr *Seton* began his improvements on the eſtate of *Touch*. The carſe part of it, far the richeſt part, had been wretchedly worn out in the hands of ignorant and indolent tenants; and a great track of land, naturally good, paid in rent but 6 s. 8 d. *per* acre. A ſubſtantial courſe of fallow with 160 bolls of powdered lime, wheat meaſure, on each acre, operated wonderfully; wheat the firſt crop, beans the ſecond, the laſt barley with graſs-ſeeds. Field after field was done in this manner. All was incloſed, and the hedges are in good order. One practice he had, excellent for ſoft puffy land, which was to feed his cattle on the fallow in hurdles, which mended the ſoil conſiderably, by making it more firm and compact.

He

He is kind to his tenants, who, following his example, are all now in a flouriſhing way.

A field near the houſe had been laid down in narrow flat ridges. The ſoil is a poor clay on a reddiſh till bottom, holding water; no wonder that the ſurface was covered with ruſhes. To cure this diſtemper, it was fallowed two years, the ridges were ſtraighted, made ſixteen feet broad, raiſed and rounded to a proper curve, and directed to the level. Before the laſt furrow was given, a compoſt of earth, lime, and aſhes, was laid on; the whole being a fine preparation for barley and graſs-ſeed. Not a ſingle ruſh has yet appeared, nor probably will, provided the furrows be kept clear.

I cannot forbear mentioning ſome of Mr Seton's tenants who have profited by his example; but I ſhall do it in a word. Robert Colquhoun is enterpriſing, and keeps his farm and fences in good order. His diſtillery profits him in the farming way by feeding bullocks on the refuſe of it, which affords him much dung. He never fails to ſow his wheat in September;

for all practitioners agree, that, to ſow wheat later on this carſe land ſeldom turns to account. John Whitehead and Robert Nielſon are both of them capital farmers, and give a good example to their neighbours, not only in ploughing well, but in incloſing and rearing thorn hedges.

The little eſtate of *Livylands*, near St Ninians, was incloſed and improved by Mr *Potter* the proprietor, and laid down in graſs. It is now poſſeſſed by his ſon a minor, and let by his tutors, ſome incloſures for 40 s. the acre, ſome for 50 s. The tenants are confined by their leaſes to nine years in hay or paſture; after which three crops of corn are permitted, upon paying from L. 4 to L. 5 *per* acre, to be laid down again in graſs with proper graſs-ſeeds. It is indeed good carſe land; but theſe rents are high.

The eſtate of *Greenyards*, the property of *Doctor Hay*, is moſtly a dry light ſoil, proper for turnip, potatoes, barley, and clover. The Doctor has performed wonders on his eſtate near Peebles, mentioned before;

before; but he appears not to give the ſame attention to his eſtate here. The hedges, in particular, are not ſufficiently protected from ſheep. A field under fallow in the carſe was well conducted. Another had got but one ploughing when I was there, though a clay ſoil holding water. But the Doctor has too much buſineſs to give cloſe attendance; and neglects will always happen, where the maſter is not conſtantly at the head of his own affairs. His farm-offices and implements of huſbandry are in good order; for theſe do not require cloſe attendance.

From *Bannockburn* to *Torewood* there is a track of ſome miles, the ſoil not rich, but dry and light, and capable of being made fine paſture. The farm-houſes on it are mean cottages, denoting poverty within. Nothing can be expected from ſuch tenants. To find the corn crops poor, and the graſs ground naked, was what I expected. But it gave me ſurpriſe not to find a ſingle enterpriſing proprietor attempting, at leaſt, to improve the land for his own ſake. One thing I ſaw abundantly ridiculous. A large

large incloſure in paſture, covered partly with whins, a part of which, about a fifth of the whole, was ploughed, probably intended for fallow, though the ſecond furrow was not yet given. What could the people mean? did they not ſee that this rendered the incloſure uſeleſs, by obliging the paſture to be herded. This leads me to an obſervation made by a gentleman ſeveral years ago, when travelling through Angus, Mearns, and Aberdeenſhire. Many incloſures he ſaw fenced with dry ſtones, ſome new, ſome decayed, and ſome tumbling down; but not a gap made up, nor the ſlighteſt reparation on any of them. This ſurpriſed him. To be at the expence of building fences, and yet never to think of keeping them in repair, appeared unaccountable. But at laſt he diſcovered the cauſe; for, upon looking back, he remembered that, in every one of theſe incloſures, there was corn as well as graſs.

In the neighbourhood of *Denny*, ſeveral gentlemen have their ſeats, and a ſpirit for improvement ſeems to prevail. As I drew near Herbertſhire, the ſeat of Mr Morehead, every thing I ſaw drew my attention,

a fine park particularly, and a court of offices. But unluckily for me the gentleman was from home, and his operator could not be found to conduct me. I could not, however, leave the place till I made ſome ſurvey. The plantations of trees pleaſed me highly; and there are many ſteep banks unfit for the plough, all fully planted, and the trees growing well. Every ſpot of ground I ſaw had been ſmoothed, dreſſed, and was covered with good graſs. He has a fine ſtock of cows; two of them I was much pleaſed with, not large, but a wonderful fine carcaſe. I was pleaſed with the ſheep, which are of a complete kind, the carcaſe well formed, a ſhort leg, yet of a large ſize, and the wool long. I would not recommend this kind as fit for ordinary paſture; but on this gentleman's paſture, I venture to ſay none are more proper.

Mr *Cadell*, formerly a partner of the Carron Company, purchaſed a muir of the pooreſt ſort, incloſed the beſt part of it, gave it a complete fallow with lime and dung,

dung, and ſowed graſs ſeeds. The verdure is good; but broom, its original inhabitant, will ſoon riſe, if it is not kept down by ſheep, or pulled up by the root when the ground happens to be wet. He built a neat houſe for himſelf on a bare ſpot, which was deſervedly called Hungry-hill. It is now highly improved, ſo as to deſerve its preſent name of Carron-park. Turnip and potatoes were the means by which the improvement was made, which prepared the ground for graſs-ſeeds. A crop of oats is now and then taken for a change, then turnip, and down again in graſs. The goodneſs of the crop of oats I ſaw, on ground originally ſo bad, ſurpriſed me. I mention it chiefly to ſhow, that even the pooreſt ground may be ſubdued and improved by good culture. I give another inſtance of a large muir in the neighbourhood, almoſt pure ſand, upon which many houſes have been built of late by men who gain their bread in ſerving the Carron Company. They begin with feuing a ſmall piece, ſtruggle to ſave a little money for building a houſe, and ſtruggle ſtill more to improve their little property. Nothing

thing is too hard for induſtry and perſeverance. This is one inſtance of many ſervices done by the Carron Company to this country. I know not of any other method for improving this barren muir, that would anſwer the expence.

Mr *Dundas* of *Carronhall* was the firſt in this country who put up a ſtack of hay. This gentleman alſo gave many other examples of huſbandry to his tenants, who profited by them, and then obtained leaſes. Mr Dundas is now withdrawing from extenſive improvements, to confine himſelf to a family farm. The fields under graſs are well done up, and well treated; for he goes over them all with a compoſt of earth, lime, and dung, and finiſhes each rotation in three or four years.

The ſpinning of linen yarn has long been the practice of females in this country. Lady Janet Dundas of Carron-hall gives a notable example of induſtry to all ranks, by an uncommon attention to improve the culture of flax, and to carry it through every ſtage of the manufacture. Her Ladyſhip honoured me with a ſight of

of a ſet of damaſk table-linen, her own manufacture, made of lint raiſed on her huſband's eſtate, that would grace the King's table. She loves to be buſy, and is making up ſuch ſets for preſents to her daughters.

In the *Carſe* of *Falkirk* the crop this year is extraordinary. But the land is alſo extraordinary, which I preſume is the reaſon why the tenants continue in their old way, without ever thinking of doing better. The crops are always good, and they are contented. I muſt except the tenants of the barony of Grange. John Kincaid is one of them, a ſenſible man, who leads the reſt. Summer fallow is now his practice, with lime; he ſows wheat the firſt or ſecond week of September; 10 or 12 pecks on the acre has produced 12 or 13 bolls; he lays dung on the ſtubble as ſoon as the wheat is carried off; ploughs immediately, and gives a ſecond furrow in ſpring, as ſoon as the ground is dry; he ſows in every third furrow beans mixed with about a third of peaſe, and hoes the intervals. Thus a great crop of corn and

ſtraw

ſtraw is got, and the ground kept in fine order. Barley comes next in courſe, and then clover. Oats was the old practice, which are not ſown till the ground be opened from Graſs. Lord Kames has the merit of bringing about this beneficial change, which will be an example to all around. This eſtate had been poſſeſſed by eleven tenants, ſcarce one of whom had ſufficiency of land to employ a ſingle plough, the farms running between 20 and 30 acres. The farms are now reduced to ſix, which, beſides giving the tenants full employment, is a ſaving upon men and horſes of no leſs than L. 200 Sterling yearly. The ſix tenants, finding themſelves now much happier than in their former confined ſituation, are bold enough to think of further improvements. At the ſame time, the rent is raiſed conſiderably, without laying any additional burden on the tenants; for, by their ſaving in men and horſes, the preſent ſix tenants are better able to pay the preſent rent than what the eleven were able to pay formerly.

A portion of a common muir having, upon a diviſion, fallen to the eſtate of Grange, Lord Kames, zealous for the Carron Company's conveniency, planted 20 acres of it moſtly with larix, being informed by the managers of that Company, that the wood of that tree is even preferable to oak for waggon-ways.

From the Carſe I went ſouthward to the high grounds, and ſaw a neat houſe building for Bailie Kid of Edinburgh. If it be his purpoſe to dreſs his fields in conformity to his houſe, I aſſure him of ſucceſs, as the ſoil is good. A tenant in the neighbourhood is beginning to think of improvements. A few good peaſe and turnip prove that the ſoil is good, though little pains have been beſtowed on the culture.

Commiſſioner Laurie's improvements, on very untoward land, begin to make a figure. His fallow is in good order, and lime is ready to be laid on. His clover is a good crop, plantations of trees are thriving, and all fenced in with a ſubſtantial ſtone wall. His farm reſembles the once famous city of Palmyra, ſituated in the midſt of

of a deſert. Mr Laurie deſerves praiſe for what he has done to reform the face of this rugged country, which muſt ſtrike every paſſenger, and for giving an example to his neighbours.

The Rev. Dr *Henry*, one of the miniſters of Edinburgh, is better known by his hiſtory of Britain on a new plan, than for his knowledge in agriculture; yet his improvements therein, though on a ſmall ſcale, are well done, and worthy of imitation. They are veiled from public view; for the learned Doctor modeſtly pitched his tabernacle in a humble valley, which is ſhaded, too, by his friend Commiſſioner Laurie's houſe, incloſures, and plantations; but not the leſs commodious ſituation, nor leſs valuable ſoil. I commend the Doctor for his good choice of this little place. I recommend the improvements he has made on it for imitation, which, if carefully obſerved, will afford a leſſon. The houſe is ſmall, but very neat, offices convenient, garden fenced and well cultivated; it is plentifully ſtored with neceſſaries for a family, and yields ſome of the comforts

comforts too, which are conſiderably increaſed by productions from a ſpot of ground juſt adjoining, highly cultivated, well manured, and like a garden, in reſpect of the culture and clean ſtate of the ſoil, which yields corn, clover, and graſs abundantly. Thus we ſee the learned Doctor, as a faithful labourer in the vineyard, is rewarded by ten-fold.

The eſtate of *Muirſide*, a name expreſſive of the ſoil, containing 130 acres, was purchaſed 10 years ago by Dr Gibſon of Leith, at which time it was a bare field without a tree, and without a dike or hedge. He has already incloſed the whole, and ſubdivided it with ditch and hedge, planted trees, made roads, raiſed ſtones that were faſt in the earth, broke them, and made them into fences where thorns would not grow. Field after field was ſummer fallowed, ridges levelled and ſtraighted at 15 feet broad, and ſo raiſed that no water can ſtand. The diſtance from Linlithgow of two miles gives acceſs for dung from that place, from 18 d. to 20 d. for the load of a cart drawn by two horſes. Shell-lime

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is procured for 20 d. the boll, carriage included. Fifty bolls are allowed for each acre, beſide dung. Mr Gibſon boldly puſhes on his improvements. The impediments were very great, which are now removed; and by perſeverance he will make a complete farm. Wheat is growing after fallow tolerably good. But that grain is not proper either for the ſoil or climate; and the following crops will feel the effects of it. The barley and oats are good, the peaſe not contemptible; clover and graſs after barley or oats do well, and is the plan that ought to be purſued here. This farm, lying in the droving track, will afford a good rent for incloſed graſs. I ſaw in one of the fields a particular kind of oats, the ſeed of which came from Tartary. Time muſt inform us whether it be preferable to our own *. This cloſes my ſurvey of this county, in which are found ſeveral eminent improvers, but chiefly among the gentlemen. This is always the firſt ſtep; but if gentlemen do not proceed to encourage good huſbandry among their tenants by long leaſes, premiums, &c. it will never become univerſal.

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* See vol. 4. p. 93. and p. 184.

This county is increaſing in population. Stirling, St Ninians, Bannockburn, Falkirk, Carron, and many other villages, are full of people, which makes wages to ſervants and labourers lower than in ſome other counties. They have riſen, however, above what was paid of old. Twenty years ago, ſixpence *per* day in ſummer, and fivepence in winter, without victuals, were common for a day-labourer. At preſent wages are advanced to 10 d. and a ſhilling, to thoſe employed at the great canal and at Carron-works, which, however, is moderate, compared with many other places of manufacture and trade. All the wheat and oats raiſed in this county do not half maintain the inhabitants. Barley and beans can be ſpared to ſupply the wants of others. Beef and mutton give conſtantly a good price. What greater encouragement can a farmer wiſh for, than a ready market for every thing he can raiſe out of the ground?

The Carron Company is a great bleſſing to this county, by giving bread to thouſands, and producing a market at home equally advantageous to the farmers around,

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as if ſituated at the ports of a great town. The rents, accordingly, are advanced to 40 s. 50 s. and 55 s. *per* acre.

The great canal of communication between Forth and Clyde has made money flow into this country, and the conveniency of export and import by water will be a great encouragement to agriculture. In that reſpect, we may reckon upon this county being, in 20 or 30 years, equal to any other county in Scotland.

As I wiſh to leave the ſtage with a *plaudite*, I finiſh this branch of my ſurvey with a very ſingular fact. In the pariſh of Bothkennar, there are 1200 acres, rented at L. 3000 yearly, and that rent paid pointedly; yet it has not a ſingle manufacture in it, nor a town, nor a village; and the people do not exceed the number of 450. Wonderful ſuch fertility of ſoil! I doubt whether in England ſuch another inſtance can be given.

End of PART I.

as it situated at the ports of a great town.
The rents, accordingly, are advanced to
£2 5s and £3 per acre.

The great canal of communication be-
tween Forth and Clyde has made money
flow into this county, and the convenien-
cy of export and import by water will be
a great encouragement to agriculture. In
that respect, we may reckon upon this
county being, in 20 or 30 years, equal to
any other county in Scotland.

As I wish to leave the stage with a
pleasing, I finish this branch of my survey
with a very singular fact. In the parish
of Borrowstounness, there are 1200 acres,
rented at L. 3000 yearly, and that rent
paid pointedly; yet there is not a single
manufacture in it, nor even so much as a vil-
lage; and the people do not exceed the
number of 250. Wonderful fitch fertility
of soil! I doubt whether in England such
another instance can be given.